The OIL WEEKLY

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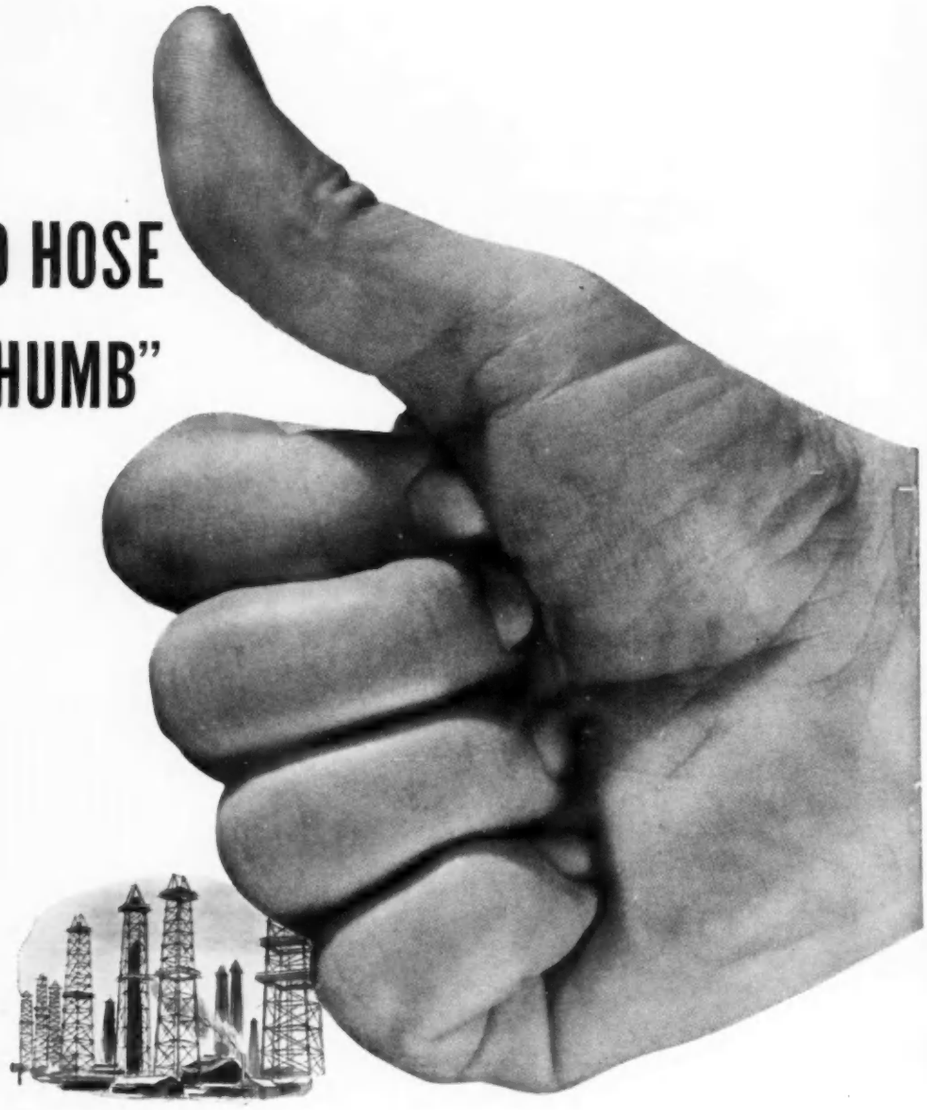

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The OIL WEEKLY and The COMPOSITE CATALOG for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

LOOKING AHEAD

...with the Editor

THE greater percentage of inventions and process betterments in any industry come through the ingenuity and experience of the employes who, through daily contact with the industry's problems, are ever on the watch for improvements, short cuts, easier and better ways of performing the daily tasks.

The oil industry, never reduced to formula and set procedure as are most manufacturing industries, has always been a prolific source of unconventional but workable devices, evolved to meet special demands, which are helping meet manpower shortages, speed production processes and aid in the transportation of petroleum and its products.

To cover the field of worker suggestions in a single article would be impossible, but in next week's issue a summary of several plans now operating will be presented, together with a discussion of form for collecting ideas in a manner which will speed decision, simplify awards, and insure expeditous adoption of workable ideas.

THE OIL MAN'S CALENDAR

OCT. 13–14	Mid-Continent Oil and Gas Association, Blackstone Hotel, Fort Worth.
25–27	Independent Petroleum Association, Blackstone Hotel, Fort Worth.
26–28	American Gas Association, Jefferson Hotel, St. Louis.
NOV. 8–11	American Petroleum Institute, Palmer House, Chicago.

THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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Contents . October 11, 1943

Volume 111, No. 6

The Changing Panorama 9

Technical and Feature Articles:

Many Factors Impede Desired Acceleration in Drilling 11

Higher Prices Would Be Oil Conservation Move 16
By A. R. McTEE

Skyrocketing War Needs Presage Early U. S. Oil Shortage 18
By WARREN L. BAKER

The Gyroscopic Clinograph 25
By G. L. KOTHNY

Facilities Being Provided to Get West Texas Crude 34
By DON L. CARROLL

Practical Operating Hints for the Drilling Rig 38

News and Departments:

Looking Ahead With the Editor 7
Washington Roundup 41
Markets, Statistics and Prices 51
United States Field Operations 57
United States Well Completions 63
United States Wildcat Starts 67
Squeaks from the Bull Wheel 68
Notes for the Equipment Buyer and User 70
Men in the Industry's News 72
Index to Advertisers 72

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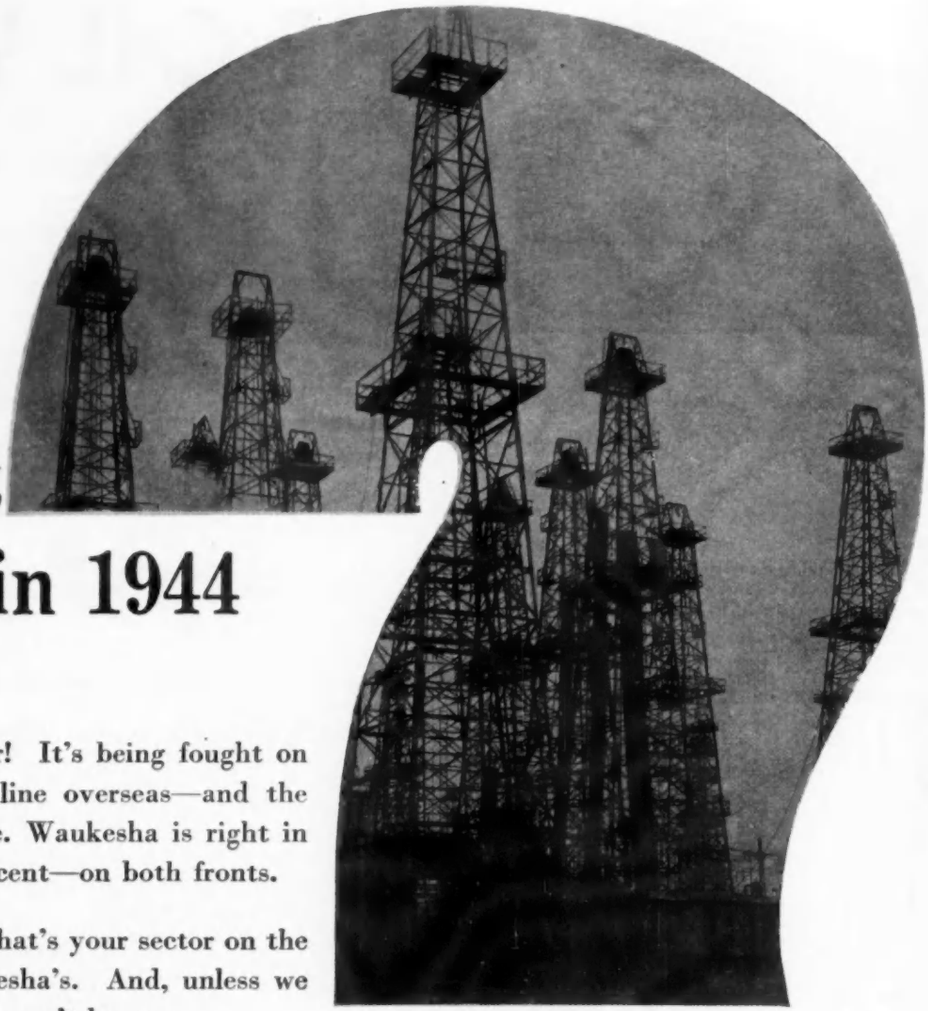
What are you going to do about engines in 1944



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The Changing Panorama

Early Decision on Crude Prices Likely

AN EARLY decision of crude-oil prices can be expected. Economic Stabilizer Vinson, who has had the crude-oil-price question under study for several months, is expected to make his decision at an early date.

The growing pressure coming from Congress (see Washington Roundup, this issue) is a further indication that Vinson will act soon. The increasing clamor for higher prices among Congressmen, which includes a bill to provide the increase and recommendations for a hike, also should increase the chances of Vinson's decision being favorable.

Must Encourage Oil At Home and Abroad

IN VIEW of the increasingly serious threat of an early shortage of crude oil in the United States, steps must be taken imediately to (1) ease the burden, and (2) to increase the country's capacity to produce. Otherwise, the United States faces the danger of seeing excessive withdrawal rates damage its oil fields to the point that many millions of barrels of oil will be wasted because they will become unrecoverable.

There are two ways in which the responsibility now resting upon the petroleum industry of the United States can be lightened. These are: (1) to shift some of the burden to other countries; and (2) to institute further reductions in civilian consumption of petroleum products. Of course, additional producing capacity could also be provided through development of substitute fuels from shales, coal and bituminous deposits, but a large-scale program of this type does not seem warranted as yet.

There are also two ways in which the country may be able to increase its capacity to produce. These are: (1) through development of additional oil sources, which would require drilling of more wells and (2) through widespread application of secondary-recovery programs.

The possibility of reducing the burden through further restrictions on civilian use offers little opportunity. A materially greater curtailment of civilian consumption might cripple essential transportation of workers and materials so seriously as to injure the war effort. Consequently, the thrusting of some of the load upon other countries is the most logical attack on the problem.

Now that the tanker situation has improved, due to fewer sinkings and record shipbuilding, it is possible to bring foreign oil to markets. Encouragement of drilling and production abroad appears the quickest, easiest and wisest move to make at this moment. However, to do this without also encouraging its own domestic industry would be a serious mistake for the United States. Both must be done, or the people and the oil industry of this country will be placed in a dangerous position. Better prices, more materials and more manpower are the encouragement needed by the United States oil industry, so that it may drill more wells and apply secondary recovery on a wider scale in order to maintain a large producing capacity.

Although called upon to produce half a million barrels more daily than a year ago, so far the only encouragement given its domestic oil producers has been slight relaxation of spacing regulations in shallow areas and small additional quantities of steel materials.

Mexico Likely To Get U. S. Assistance Soon

AN EARLY announcement is likely of plans whereby the United States will advance Mexico millions of dollars for production and drilling work and provide the necessary priorities to get the needed equipment for such an undertaking.

The way was cleared September 29, when the State Department agreed that by paying American owners an additional $20 million (they were given $9 million in 1941) the expropriation of oil properties in Mexico would be considered settled.

It will be noted with interest that last week, Mexican officials were mapping out a program for expanded drilling and production work. Several Americans, including E. DeGolyer, formerly with PAW and now an officer of Petroleum Reserve Corporation, which is encouraging the development of foreign oil resources, were present. Reports have it that as much as $50 million may be granted. Already the United States has agreed to advance $15 million and obtain the materials for an aviation gasoline plant in Mexico.

Better Utilization of Manpower Necessary

THE statement that better utilization of the American work force is now the primary means of getting the manpower needed to supply the war plants of the nation, made by Lawrence A. Appley, executive director of War Manpower Commission, in California, recently, indicates that WMC is now working in the right direction. With efficiency of manpower utilization in war plants sliding up and down the scale to as low as 30 percent, obviously there is room for much improvement in this field.

"Facts and figures previously quoted to the contrary notwithstanding, there is serious waste of manpower in certain of the war industries, notably shipyards. If there is any doubt as to the accuracy of this statement, WMC should undertake a thorough survey of the shipyards and see just what the situation is. Conversations with workers from a few yards taken at random leads to the conclusion that in many instances there is actually a surplus of labor in the yards instead of a shortage, that there is too much lost motion in getting work done, and that the problem is more one of management than shortage of labor.

There is also the suggestion that the widely prevailing cost-plus system of letting contracts for the ships, encourages inefficiency and puts a premium on red tape, duplication of effort and complicated methods of operation generally.

Naturally there is a wide gap to bridge when thousands of untrained people are brought together in such enterprises as make up the shipyards. In most of them, a large percentage of the workmen never saw a ship before getting jobs in the yard. In a sense, there is no chance of getting trained workers. It is a matter of trying to find the most adaptable workmen and teach them their specific jobs as rapidly as possible. Operators of the yards are due great credit for every effort made to handle this problem. Ships are being produced in great quantities, but at what cost? Perhaps in wartime the cost cannot be considered. Yet, there is no reason why the same principles that goven the successful operation of private business cannot be applied to these great wartime activities.

Perhaps it has taken all this time for WMC to arrive at the point where it

can investigate this problem. If WPB now has the authority to ask WMC to study the way plants are using labor, it should begin the use that prerogative at once, for it is our opinion that a searching investigation will prove the correctness of the assumption that proper use of the present work force is the key to the manpower situation.

Increased Workover Of Wells in Prospect

WITH production rates increasing rapidly to maximum levels, producers will have to give more and more attention to maintaining their wells in top producing condition. This will call for a continuous cycle of workover and repair jobs. Operators of well-servicing companies, like other enterprises, are suffering from manpower shortages, and likewise face prospects of the situation becoming more serious.

One well-servicing company operating 11 rotary rigs, all capable of working over 10,000- to 14,000-foot wells, reports that only two of its rigs are operating with three crews. The crews on the other 9 rigs are working 12 hours daily 7 days a week. Some of the men have worked under this condition, without a single day off, for over 7 months.

This gives an idea of the manpower situation. Crews on workover rigs put in every minute at hard work. There is very little idle time around a workover rig. Most of the time the crew is going into the hole or coming out of the hole. Men tire at a pace like this. Danger lurks at every corner, because tired men tend to grow careless. One man lost to a workover job means the loss of considerable oil. This same company has five new rigs ordered, scheduled to be delivered in the last quarter of this year. The problem is not work, or rigs, but manpower.

Sumner Pike's Face Is Pretty Red

"THIS," writes Sumner T. Pike, chief of OPA's petroleum price division, "is to confess my prize boner at the hearings before a subcommittee of the Senate Committee on Agriculture on September 20 (THE OIL WEEKLY, September 27). I just plain misunderstood Senator Bushfield's question as to whether we might import a billion barrels of oil next year from South America. I thought he was asking as to whether there should not be an increase in imports and did not get the size of the figure at all. It was pretty shocking to see such a reply in the cold type of the record and I have requested that, with Senator Bushfield's permission, the record be changed. My face is pretty red."

Obviously, several factors make it physically impossible to import this much oil from South America within a 12-month period. This would be equivalent to 2/3 of the United States production rate, and South America cannot produce anything like 2,800,000 barrels per day. The country probably will not be able to produce 1,000,000 barrels daily next year, although plans for stepping up of production are under way. Furthermore, there would not be enough tankers to handle this volume.

Why Not Prospect Horizontally, Too?

THE "average" well is estimated to require 60 tons of tubular goods for completion, to which there should be added another 3 tons as its prorata of the life of the drill string required to take it down. This total tonnage of pipe, based on 1942 data, is short of covering conditions this year, but will run short rather than over.

With 63 tons of 2-inch pipe rolled from the same steel, there would be available 5 1/5 miles of line—or if 4-inch were desired, 2 1/5 miles of the larger pipe—for use tying in to existing trunk facilities wells which are now without pipe-line outlet, and which in many cases these days of truck shortage, are closed in and their production indefinitely postponed.

There is an economic balance somewhere between the desire to discover new fields, to prove new reserves, and the inclusion of known oil resources in the fields not now contributing to the Nation's needs. In some instances it seems that the known—but untapped—fields are being penalized in the scramble to discover new pools. If 63 tons of steel can put into the production totals an allowable of 100 barrels of crude per day in a successful wildcat, and four times that amount of metal in line pipe will make available 400 barrels of crude from a shut-in or curtailed field, urgent war demand would seem to specify the pipe line, if only on the basis of immediate availability of the shut-in crude against the development delay in the other.

Allocation of some steel to feeder lines, branches on existing gathering systems, and even the occasional small, high-pressure tap to a relatively unimportant and presently shut-in field may prove to be the most effective use of steel tonnage—even if the process does seem to go farther toward depleting artifically set up "reserve" figures. Actually, such a process of drawing from shut-in fields is in effect a tapping of frozen assets, the only difference between that and drilling being that already established stocks are drawn on, instead of the addition of new figures which, with the shut-in fields still included, represent a fictitious and excessive total.

Tanker Construction Increasing Sharply

TANKER construction in September reached almost one a day, there being 29 delivered during the month as compared with the previous record of 21 made in the preceding month. From January through September a total of 130 tankers have been delivered.

Under the wartime standardization program most of the tankers are the T2 and T3 types. These vessels are of 16,600 deadweight tons, with a capacity of 135,000 barrels, which have proved invaluable because their speed is greater than "fleet speed." Delivery schedules call for a total of nearly 400 more of this type by the end of 1944, and for additional tankers of other design. By the end of 1944, a total of more than 660 tankers are expected to be delivered since Pearl Harbor.

The oil tanker production program is being rounded out by the conversion of 102 Liberty ships into oil carriers. These vessels, after reinforcement of bulkheads, addition of piping and pumping equipment, and other alterations, serve as tankers with a capacity of 65,000 to 70,000 barrels each.

New Cargo Ships Much Speedier

THE new Victory ship now being turned out by many of the nation's shipyards is soon to replace entirely the Liberty ships previously built. Reasons: Victory ships make 15 knots or better against the Liberty vessel's 11 knots. This increased speed achieved through geared steam-turbine power units enables the ship to outrun submerged submarines. Also the Victory ship will be able to make a third more ocean crossings in a year as the slower Liberty type. Thus, although they have the same 9,146 ton cargo-carrying capacity as the Liberty ship, vessel for vessel, the Victory will materially increase the amount of shipping space available.

Many Factors Impede Desired Acceleration in Drilling

A GREAT shortage of oil is in prospect for this country, and because it is one of the most important of all war commodities, there must be increased drilling in an attempt to increase the nation's production. However, due to severe handicaps of insufficient material, manpower, transportation and other factors, the rate of completing wells is being impeded, and there are grave doubts that the necessary number of wells can be drilled unless some of the obstacles are overcome. If the oil business is as essential as it is told that it is, it should be given a green light, and all obstacles hindering additional drilling should be removed.

These were the messages and thoughts brought to the annual convention of the American Association of Oilwell Drilling Contractors, held in Houston last week. The heavy responsibilities being imposed upon the drilling branch of the industry were stressed by several speakers, while others discussed conditions that are retarding the effort to find more oil. Among the latter, various phases of manpower, material and transportation received wide discussion.

Great expense and loss of much drilling time is being created by the inability to obtain materials promptly, by lack of transportation, by the necessity of using inexperienced and too few men, and by use of substitute steels in the manufacture of some machinery items. Perhaps the biggest problem is manpower, but there is some hope that arrangements have been worked out whereby it will be possible to get skilled drillers back from war defense plants. However, drilling equipment has received such severe wear during the past year, machinery may become a more severe problem than in the past, although the industry is expected to receive bigger allotments.

Manpower Assistance Promised

The manpower problem of drilling contractors is particularly acute because of the curtailment in drilling operations in 1941 and 1942, when skilled workers left the industry to enter highly paid war industries. However, PAW has interceded with the War Manpower Commission to bring about return of some of these workers. The American Association of Drilling Contractors, according to Brad Mills, secretary, has reached an agreement with WMC for a procedure on this problem, as follows:

If drilling contractors will locate skilled drilling workers now in other industries, and furnish their names and addresses to the association headquarters at Dallas, the association will pass all such names to WMC. In giving the names of men, a statement should be furnished on the need for additional men and when. WMC will requisition the men from defense industry, if it is decided that they are more highly skilled in the drilling of wells than in war-plant work. However, the men must be willing to return to the oil industry, as WMC will not draft them but merely arrange for their release from war plants.

"There is no manpower shortage in the United States," contended Robert V. Shirk, chief of the manpower section, production division of PAW, "but there is great misapplication of manpower, due to various contributing causes, chiefly cost-plus defense-plant jobs, where plants are overstaffed with unneeded and unnecessary manpower, to the great detriment of other war industries of equal or greater importance . . . PAW is fully aware of the critical situation now facing the petroleum industry, and is lending every possible aid to carry out an educational program among other interested agencies in order to point out to them the necessity of securing an adequate pool of petroleum workers. In this effort we are securing the finest cooperation, and relief is definitely in sight."

Furthermore, according to Samuel E. Hill, assistant labor counselor for PAW, uniform wage brackets have been established so as to give all contractors an equal chance to secure and hold drilling crews. Uniform wage scales will apply throughout PAW Districts 2, 3 and 4, with the exception of Ohio, and on the following basic hourly scale: drillers, $1.58; derrickmen, $1.10; enginemen and firemen, $1.05, and floormen and roughnecks, $.99.

Regional boards have been instructed to approve applications for authority to raise wages to the above levels.

It developed that the question of continuity of work, moving, housing, transportation and other phases, are important factors in the current manpower situation. It is especially hard to get men for wildcat work in areas where there has not been considerable continuous work. This is due to the ability to obtain work near established homes, and the difficulty of finding houses. It was suggested that portable knockdown houses might be an answer to this problem, and it was thought priorities to purchase these might be obtained. Increased drilling, it was thought, would provide the continuous work that drillers desired.

There also has been some difficulty experienced in providing transportation for getting men to drilling sites. A part of this has been due to troubles in getting gasoline, because the moving of rigs has changed mileage so frequently. In North Texas, OPA is experimenting with a new plan to assure and regulate the amount of gasoline required by drilling crews to get to and from work.

Substantially the plan is this: The drilling contractor determines the approximate amount of gasoline needed.

Need for more drilling becomes acute in view of increasing signs of oil shortage, but there is doubt if higher rate can be attained until scarcity of materials and manpower can be relieved. Situation discussed thoroughly at annual meeting of the American Association of Oilwell Drilling Contractors.

Application is then made to the local OPA rationing board for a two-month period. The board then issues specially validated R coupons to the drilling contractor, who in turn gives a 15-day supply to the driller. The driller then furnishes coupons to the car driver. So far the plan is working satisfactorily for both OPA and the contractor. It eliminates the necessity of issuing numerous C coupon books, and assures the crews of sufficient gasoline. Very little extra work is put on the contractor. The conrtactor is required to make a report every 15 days to OPA.

Oil Shortage Here

The oil industry must find a new 30-million-barrel oil field every week to keep pace with demand, or the nation will be 500,000 barrels per day short of actual needs in the third quarter of 1944, Ernest O. Thompson, member of the Texas Railroad Commission, told the drilling contractors at a banquet session Tuesday evening.

Asserting that companies presently are drawing oil out of the ground five times faster than they are discovering new fields, he predicted that the oil shortage will get worse as military demands increase and "our military demands will constantly increase as we get more and more on the offensive."

Thompson said for two long years "we have insistently urged the price of oil be raised 35 cents a barrel at least, but all this effort has been to no avail and the cost of drilling and producing has constantly risen until today it will take an increase of at least 50 cents a barrel to create the same incentive that a 25-cent raise would have produced in November, 1941."

The government has to have a crisis before it acts, Thompson said, warning that it is high time that some group connected with the oil-producing business tell the public that we are truly short on oil. He predicted that the gasoline scarcity probably will become even more severe as the war progresses.

"We are fighting an oil war. We are fighting on many fronts and it is absolutely necessary that adequate stock piles of gasoline and oil be built up on all fronts and that they be built up at the same time.

"The quality of the gasoline needed is such that it requires much more crude than ever before. Remember that 100-octane gasoline requires more crude in refining than the ordinary motor fuel, and just put it down that every gallon of 100-octane put out displaces 2 gallons or more of ordinary automobile gasoline that would have been available from the same quantity of crude oil.

"Every ship that leaves our shores on the average is loaded 60 percent of its capacity with gasoline and oil. Nobody is holding out on any gasoline. It is victory bound."

The commissioner said the answer to the oil shortage is simple: an adequate increase in the price of crude to stimulate a search for more deposits. Emphasizing that "we have always found oil in the past when the price furnished the incentive," he cited these figures:

"In 1916 the price of crude was $1.10 a barrel and 24,619 wells were drilled.

"In 1917 the price was $1.56 and 23,407 wells were drilled.

"In 1918 the price was $1.98 and 25,687 wells were drilled.

"In 1919 the price was $2.10 and 29,173 wells were drilled, and in 1920 the price of oil went to $3.07 a barrel and 33,911 wells were drilled."

24,000 Wells Next Year

D. R. Knowlton, director of production for PAW, whose paper was read by J. E. Heston of his staff, said current demand for petroleum made necessary an accelerated drilling rate.

"The program tentatively estimated by PAW calls for the drilling of 24,000 wells during 1944," he continued. This will compare with approximately 19,000 wells during 1943. "To accomplish this it will be necessary that the present drilling rate be maintained as an average for the entire year of 1944.

"While the rate of drilling in proved territory has shown an encouraging increase, I fear we shall be far short of the goal of 4500 exploratory wells this year. It is true that wildcatting is being carried on a little more actively than normally—records indicate that a total of 3400 wildcat wells may be drilled this year—but reserves are still decreasing. We are still producing oil much faster than we are finding it. The average pool discovered in recent months is much smaller in magnitude and harder to find than was the case a few years ago. To offset this trend and the additional drain on reserves brought about by an extremely high production rate, it is imperative that exploratory activities be increased to the greatest possible extent. PAW has set a goal of 5000 exploratory wells for 1944 as the number required to assure ample supplies of oil for the successful prosecution of the war. We intend to do everything within our (PAW) power to realize this goal.

Knowlton revealed that a check on the current drilling situation shows 377 more rotary rigs and 136 more cable rigs were in service during September of this year than were employed in January. This represents the addition of 3 rotary rigs and 1 cable tool rig every other day.

Knowlton put his finger on the drilling contractors as those who must be on the spot, so to speak, to dig the holes. "Drilling contractors have a role to fill in the accomplishment of the requirement drilling program that is as important," he said, "if not more so, as that of any other single group in the country. For after all, you are the ones who actually dig most of the hole. The rest of the industry would be almost lost without your tools and equipment and your 'know-how' on making hole." He urged each of them to apply their knowledge, skill and equipment fully to the end that the war program would not be hampered by lack of petroleum.

Many More Rigs Operating

In an effort to supply the needs for petroleum products, which have been increasingly military, drilling activities already have been stepped up and will be further increased. "In round numbers, there are two more rotary rigs and one more cable-tool rig drilling today than were in operation yesterday at this same hour," asserted Frank A. Watts, PAW director of materials. "Tomorrow two more rotary rigs and one more cable-tool rig will be in operation than are drilling this time." This is the average "daily increase in drilling activities since the first of this year . . . Today, nearly 1200 rotary rigs are operating in this country, in comparison with slightly more than 700 rigs the first of the year—increase nearly 70 percent. Today, nearly 1400 other than rotary rigs are in operation, in comparison with about 1200 during January—increase nearly 20 percent. Today nearly 2600 rigs are in operation in comparison with 1900 the first of the year—increase 36 percent."

During the first quarter of this year, Watts pointed out, "3653 wildcat and development wells were drilled for the production of oil, condensate and gas. During the second quarter, 4279 such wells were drilled. These figures exclude water-input, repressuring, and other wells not drilled as potential producers of oil, condensate and gas."

Need More Materials

"Before completion, the average wildcat and development well drilled for the production of oil, gas or condensate requires the use of approximately 64 tons of carbon steel, 11 tons of alloy steel, 180 pounds of copper and copper-base alloys, and 4 pounds of aluminum. These amounts," Watts explained, "are arrived at by dividing the number of wildcat and development wells currently drilled into the amounts of controlled materials allotted to production operators and petroleum equipment manufacturers." It can be seen from these figures that further acceleration of drilling will call for large additional amounts of equipment. "This accelerated program cannot be conducted without materials," Watts stated, "and when we realize that this

nation's demands for materials currently exceed all available supplies by more than 26 percent, the problem becomes one which cannot be solved by any simple formula. It is a problem which requires the complete and whole-hearted cooperation of all concerned—the producer of materials, the manufacturer, the distributor, the supplier, the production operator, WPB and PAW."

The oil industry equipment situation is further clouded by the fact that raw materials—carbon and alloy steel, copper and aluminum—allotted to manufacturers today will not reach petroleum operators in the form of drilling machinery or items of production equipment for an average of about six months. "Manufactured items reaching operators today were allotted by PAW to manufacturers as raw materials about six months ago. In the interim period, more than 360 additional rotary rigs and more than 180 additional other rigs were placed in operation. No one can predict the exact number of additional rigs which will be placed in operation during the next six months, and for which carbon steel, alloy steel, copper and aluminum are at present being allotted by PAW," continued Watts.

Still another factor retarding the delivery of equipment to the industry is the fact that during the latter part of 1941 and the early part of 1942, the more than 400 companies who were manufacturing equipment used primarily in the petroleum industry converted the major portion of their facilities to the production of military items. "Relatively small portions of their facilities were reserved for the manufacture of items required in petroleum production operations.

"Drilling and production activities outside of the United States," Watts said, "are being stepped up at about the same rate domestic operations are increasing." Consequently, materials required for foreign operations are expanding at about the same rate required for domestic operations.

These conditions make it "increasingly necessary," Watts declared, "for the production operator to plan his operations as far as practical into the future and, as soon as definite plans are made, to order all materials for which there are known needs."

Equipment and Manpower Needed

The problem of how to increase the rate of drilling can be resolved into two categories, said J. E. Warren, of Carl B. King Drilling Company. He listed these as equipment and manpower. "In considering equipment we find that the actual physical condition of rotary equipment, in general," he said, "is below the average standard maintained during peace times. This is true because sufficient new equipment has not been made available to take care of the normal demands of obsolescent and physical depreciation. Neither is there sufficient labor available for the work projected at present. A large percentage of the labor currently employed is inexperienced, and the average efficiency of drilling crews has dropped considerably . . . We are having more and more work to do and less equipment and men with which to do it."

Warren suggested two methods of attacking the problem: that the causes of delays and inefficiency be analyzed in order that proof, based on facts, can be presented to governmental agencies in an effort to secure approval of the vital basic requirements to efficiently conducting drilling business; and operators, contractors and service companies should work in close cooperation in order to effectively use the equipment and manpower now available.

Warren said that some of the important factors to consider are:

1. Development programs should be planned to keep trucking at a minimum.

2. New progress should be anticipated and contracts let well in advance, so that location, roads, derrick, water and pits are ready when the drilling rig is available to move on location.

3. Operators should notify contractors as far as possible in advance when a rig is to be released, so that the contractor can arrange for work elsewhere and avoid lost time of crews and the rig between locations.

4. Operators should assist the contractor in grouping his rigs whenever conditions permit, so that trucking may be reduced, and supervision made more effective.

5. Operators and contractors should cooperate and advise with local authorities of nearby towns when considerable drilling activity is anticipated in an area, so that housing facilities can be arranged for drilling crews and unnecessary driving is eliminated.

6. Operators and contractors should cooperate to influence governmental agencies and supply companies so that repair and replacement parts are readily available in active drilling areas to reduce lost time of the rigs and crews when breakdowns occur.

7. Operators and contractors should cooperate in establishing a central clearing house at supply and trucking cen-

Officers of American Association of Oilwell Drilling Contractors

New president of the American Association of Oilwell Drilling Contractors is A. H. Rowan, Rowan Drilling Company of Fort Worth and Houston, who is seated at right. Other officers include, seated, left to right: J. E. Warren, Carl B. King Drilling Company, Midland, vice president for rotary tools; and John Chapman, Grey Wolf Drilling Company, Houston, vice president for the Gulf Coast area. Standing, left to right, are: Brad Mills, Dallas, secretary; J. E. Brantly, Drilling Exploration Company, Dallas, one of the organizers of the association and its president for the first two years; and N. H. Wheless of Shreveport, retiring president of the association. Other officers, besides those shown in the photograph, include: H. L. Sullivan, Tulsa, vice president at large; Ben M. McGraw, Carmi, Illinois, vice president for cable tools; Harry S. Connelly, Wichita, Kansas, vice president for Kansas; Cyrus Bell, Los Angeles, vice president for California; C. M. Ashby, Saginaw, Mich, vice president for Illinois and Michigan; K. B. Knox, Houston, vice president for well servicing; Harry W. Bass, Dallas, treasurer.

ters, so that the needs of all operators can be handled jointly with a minimum of trucking and driving.

8. Steps should be taken to acquire additional skilled labor for drilling rig crews. Since there is insufficient labor available for rigs now operating, it is axiomatic that more labor is needed if additional rigs are put into service.

9. Steps should be taken to provide telephone service for new fields and thereby minimize the amount of driving necessary to communicate with headquarters or supply centers.

10. Service companies should be consulted and advised well in advance to allow them to plan an effective work schedule.

N. H. Wheless of Shreveport, in his presidential address, gave the assembled drillers a report on his stewardship of the association during the past year. He reminded them that their organization represents more than half of the rotary drilling industry and a large segment of the cable operators. With all that backing, he said, the drillers' voices were heard and were effective in Washington, through the activities of the several committees that were named to represent the association and plead its causes. He reported success in securing government recognition of inequities regarding double-pay overtime, by getting the rule to apply for Sunday work only. In like manner there was accomplished the establishment of a uniform wage bracket for rotary drilling throughout the Mid-Continent area, instead of the three separate brackets that were set up originally. Working with the War Manpower Commission, one committee sees success in sight with regard to the returning of skilled drillers to the oil fields, he reported. The ruling to be applied in this instance is that skilled workers in vital industries must be employed at their highest skills.

Wheless was optimistic with regard to both the manpower and materials situation, indicating that shortages and bottlenecks would very likely be less serious in coming months, and that the actual needs of drilling contractors will be adequately met. With the assurance of active government interest in the problems of the driller, he called on the contractors to make every effort, as the fulfillment of a patriotic duty, to drill as many wells as the government asked for, and much more than the 75 or 80 percent of all operations that they usually handle. "It is up to us," he said, "to devise the ways and means of doing it."

Poorer Equipment an Impediment

Efforts of the drilling industry to complete more wells is being impeded greatly by the necessity of using equipment of inferior workmanship and materials, as well as by the shortage of tools and men, according to M. Lyle Cashion, drilling superintendent for Gulf Oil Corporation. This is caused by the scarcity of high alloy steels.

Inferior grades of steel that are far too soft in many cases are being used in casing, and he continued, "we are told that rubber for drill pipe protectors will be withheld, so we have the problem of protecting our casing and our drill pipe that is inferior in quality and for that reason more easily worn, without rubber protectors in the near future, which will increase the difficulties being experienced with softer drill pipe and casing.

Drill pipe is being watched closer than ever before, bad joints are culled and others repaired. Tool joints are being replaced when obtainable, or rebuilt when necessary. Double-pin or double-box drill pipe with relatively inexpensive wear subs in between are being used, which can be rebuilt or replaced at nominal cost. Various methods of applying hard-facing materials to tool-joint boxes are being developed and used that will not increase the diameter of the boxes or interfere with the operation of elevators. However, despite all this care, the number of costly and delaying fishing jobs is increasing. "We are told," Cashion said, "that N.E. steels properly heat treated are the equivalent of SAE steels we formerly used. However, performance to date refutes the argument.

"The story is the same with drill collars. All replacement drill collars and subs are N. E. steels. We are having more drill collar trouble than before the use of the N. E. material," he continued. This is occurring although greater care is being taken to have them properly fitted and threaded.

"Tool joints are not readily available—deliveries are running far behind requirements. The manufacturers are booked up months ahead and cannot make deliveries. N.E. steels, so far, seem to have been satisfactory when made into drill-pipe tool joints. The tool joint problem so far as we know seems to be one of production.

"Rock bits, too, are not always readily available," Cashion pointed out and declared that it was often necessary to run drag bits or fish tail bits while waiting on rock bits—or to shut down. Rock-bit manufacturers are redesigning their bits to make the N.E. steels do as good a job as the SAE steels. The designs are rather ingenious," but drilling contractors are complaining of "more round trips, can't get any footage, have to have more money per foot. We see it in our company operations, we cannot keep a bit in the hole as long as formerly and we get cutters in the hole with considerably less time on bottom.

"Drill pipe, tool joints, rock bits and drill collars are major items critical to our operations. No hurry-up program of drilling for oil can be accomplished without these items. We can patch up drawworks, we can use all kinds of substitute sizes and makes of pumps, rotaries, etc. We can loan each other rig equipment, but we cannot drill wells efficiently without good drill pipe, tool joints, rock bits and drill collars or under conditions as they exist today... There should be some relief of this situation."

One difficulty in overcoming the problem of equipment is the fact that many oil-field manufacturers have taken on large war work contracts, which means that they cannot supply the oil industry with the necessary rock bits, tool joints and drill collars. "It is for PAW or others to say, but we are wondering if we have not progressed to the position in battle of production where these contracts could be relieved to such an extent as to relieve the necessary machines by transferring a part of the contract to other plants, thereby placing these machines on the production of oil tools."

Warned Against Federal Control

Drilling contractors were warned against the existing threat of permanent governmental control by Arch H. Rowan, Rowan Drilling Company. The rapid development of the petroleum industry of the United States is "not a geographical accident; it is a product of free enterprise, private initiative, and dog-eat-dog competition . . . But the drilling industry has been asleep during an evolutionary period when the world trend has been toward nationalization and governmental control. Our individualism and competitive natures have blinded us to the fact that we have been steered into the position of a beneficiary whose reward will be a beneficient bequest in a pauper's will. Only a few changes in existing government regulations (for example, intangible drilling costs), would virtually destroy the whole industry."

The infiltration into "this country of socialistic ideas constitutes a real menace to any prolonged existence of the drilling industry as we know it. Within the last decade, and during our dormancy, the days of free, competitive drilling and production have gone . . . We have gone through a period of both voluntary and enforced production control, and we are now faced, like it or not, with complete federal control of the whole industry . . .

"We have a further task—we should frankly and honestly acknowledge it now. After this war, if the United States is to survive and progress, we must return to the principles of individual freedom and enterprise."

The drilling contractor is needed in

the oil industry because "through his services he provides for the industry the most economical and effective utilization and efficient use of manpower, material and supplies in the drilling operation." This was the statement of Chase E. Sutton, division manager, The Pure Oil Company. "By performing drilling service for a multiplicity of operators he is in a much better position to maintain steady employment of experienced personnel than is the individual operator. This not only results in a more effective operation, but has many complimentary benefits, such as reduced accident rates, better care and maintenance of equipment, continuation of the improvement of operating technique and others.

"The truly progressive and sought after drilling contractor," continued Sutton, "is the one who, upon accepting a contract, places the interests of the operator on the same plane or importance as his own interests, and who develops an organization that not only effectively performs the specific terms of the contract but as equally effectively conducts the operation to the satisfaction of the operator." Sutton was referring to the oft-stated objection to contract drilling, which is generally to the effect that the contractor is interested only in the footage made and cares little as to the outcome of the job as long as the contract results in a sure profit for himself.

Drilling Practices

Discussions before the drilling practices committee emphasized new developments in cementing, calipering, the growing use of oil-base muds, advantages of temperature surveys, and suggestions as to what types of new equipment are most needed for more efficient drilling operations.

C. P. Parsons of Halliburton Oil Well Cementing Company reported his company now has two new cement plants, at Hays, Kansas, and at Hugoton, and that the use of bulk cement is practical from every standpoint, saving the cost and added labor of sacking and multiple handling and making possible automatic, mechanical mixing at the well site, using unskilled labor. This practice also reduces waste of dry cement and will probably be continued from now on.

Parsons also discussed the advantages of caliper surveys of open holes and the use of the caliper for locating casing breaks, the accidental formation seating of collars, and the general saving of manpower by the elimination of guesswork as to the condition of holes. He pointed out that caliper surveys greatly reduce the number of unsuccessful runs by making possible the better placing of seats. Other committee members testified as to the all-around savings involved in the use of such controls.

It was agreed, after extended discussion, that the use of oil-base muds is advantageous in preventing caving and metal fatigue, that they are more effective in shutting off water, and make possible better cementing jobs, especially when salt beds are encountered, although it is difficult to secure good electric logs when the rocks are impregnated with such muds.

Multiple-stage cementing came in for unanimous approbation, since it makes possible virtual elimination of entire casing strings. It was reported that this type of cementing job service is in great demand.

Another topic discussed at considerable length covered the use of gypsum cement behind casing to save rig time, because of its ability to set immediately. It was further credited with supplying an effective cushion against rig shock acting on strings. It is now being widely used, following successful use in the Elk Hills, Wyoming field. Instances were cited wherein its use was found to be effective in stopping cratering around the mouths of wells.

Temperature surveys of wildcat wells completed dry were advocated as a means of accurately determining cement tops, before cutting casing preparatory to pulling. Much more pipe can be saved by this means.

John Chapman of Grey Wolf Drilling Company, Houston, offered his ideas as to what drilling contractors would like in the way of new and better equipment from manufacturers, as soon as necessary materials become available. He mentioned the need for lighter-weight rigs, tongs, elevators and slips, using magnesium and other light metals as much as possible in alloy formulas. He also asked that manufacturers attempt to develop power pumps having the characteristics of steam pumps, with a hydraulic drive effect, to cut down stalling, reduce torque strain, maintain constant pressure, and get speed reduction in the drive itself.

It was decided that bit replacement is up about 15 percent as a result of lack of satisfactory pre-war steel alloy stock. Manufacturers are trying to cut down on number of bit sizes to produce them in the needed quantities.

Good Accounting Needed

W. K. Powell, Two State Drilling Company, discussed the need of good accounting especially during these turbulent times when operators are not sure of their mounting costs. The cost of maintaining equipment, replacing worn-out drill pipe and other equipment should be carefully handled from an accounting standpoint so that intelligent bids may be made on new work, according to Powell. Well cost records, taxation, insurance and other matters to numerable to mention demand the services of accountants trained and experienced in the oil fields, the close cooperation of field men and the accounting section of a drilling contractor company was elaborated on by Powell.

"Currently the greatest need for accounting as an educational weapon is to protect ourselves from ill advised bureaucratic measures. With most of our bureaus we have the difficult problem of not an intentional irrational approach to our problems but rather that of direction by good men of good intent with no mastery of the business which they are regulating," he said.

Bureau of Mines Film Tells Story of Oil in America

A new Bureau of Mines educational motion picture entitled "Petroleum and Its Uses," depicting the important role played by petroleum and its products in the daily life of the Average American family, has just been released for free distribution, Dr. R. R. Sayers, Director of the Bureau, recently informed Secretary of the Interior Harold L. Ickes.

In 16 millimeter sound with a running time of 42 minutes, the new film was produced in cooperation with a large oil company. It shows how petroleum figures in our everyday life—in candles, waxed paper, paper matches, medicines, insect sprays, building materials, clothing, plastics, cosmetics, explosives, and in transportation.

Pictured also are scenes from the laying of the "Big Inch" pipe line, modern oil-well drilling methods, the use of wax in dressing poultry, use of smudge pots to protect orchards from frost, servicing of transport planes, and construction methods in which petroleum products are used in flood-control work, road building, and in protecting homes from the elements.

Of unusual current interest are scenes showing one of the steps in the production of synthetic rubber, which contains chemicals obtained from petroleum, and the use of carbon black, derived from natural gas, in the manufacture of rubber for tires.

The plot of the 42-minute film centers in the home of "The Watsons," a typical American family. Principal characters are "Dan Watson," the father; "Dick Watson," his 12-year-old son who has received an assignment in school to prepare an essay on the modern-day uses of petroleum and its products; and "Gideon Hill," a petroleum engineer.

Because of the interesting manner in which the subject matter is presented, "Petroleum and Its Uses" is equally suited for industrial and civilian defense training classes, training classes conducted by the armed forces, and for schools, colleges, churches, civic and business organizations, and similar groups, Dr. Sayers said.

Applications for free loan of "Petroleum and Its Uses" should be addressed to the Graphic Services Section, Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Pa., and should state specifically that the borrower has a sound projector for 16 millimeter film. Although no charge is made for use of the film, the exhibitor is expected to pay transportation charges both ways and for loss or damage other than normal wear.

Higher Price Would Be Oil Conservation Move

Possible irreparable damage to United States oil fields most dangerous and far-reaching of all the bad effects accruing to the nation from refusal to remedy crude oil prices

By A. R. McTEE, Staff Writer

IN the fight for a crude-oil-price increase the real crux of the situation, namely conservation of oil and gas, seems never to have taken hold in OPA. At least if it has, it has been given the soft pedal. Giving as its reason for refusing the advance, the agency has represented itself as determined to adhere to the President's hold-the-line order to minimize inflation.

This action was taken against the advice of Petroleum Administrator for War Ickes; Petroleum Industry War Council, the body charged by the President to assure a supply of petroleum during the emergency; the whole group of smaller operators within the oil industry, with a degree of concurrence by larger companies; and a host of others familiar with the oil problem, including governors of most of the oil-producing states along with heads of conservation departments and regulatory agencies. In fact, it can be said that all arguments possible have been presented to OPA in favor of the increase, most of them based on the necessity of saving as much of the present known supply of oil and gas as possible by controlling production rates and offsetting withdrawals by constantly attempting to build up underground reserves through new discoveries.

A better price of oil has been given as one of the factors most likely to encourage more drilling on the part of the whole industry, and especially the independent wildcatter, at this time when drilling is so badly needed to bolster rapidly declining reserves. A better price for oil would also encourage secondary recovery programs, which would make available billions of barrels that cannot be produced under economic conditions now existing.

Whether the increase is granted may or may not be vital just at this time, depending on what the arguments for or against mean to one. If granting the raise would disastrously aggravate inflationary tendencies, why then expediency obviously dictates refusal of it. It becomes the lesser of two evils under such circumstances. On the other hand, if exceptions can ever be justified, or if any flexibility is in the hold-the-line order, the case of crude oil demands use of both. The war cannot be won without oil—but neither can the peace, and it is this latter fact which seems not to have occurred to OPA in its steadfastness. This country's economy is so inextricably tied up with petroleum, that without it, the Untied States would face a set-back in progress amounting to generations. At the best, we could only hope to mark time until suitable substitutes were developed, whatever time that might require.

Incredible as it appears, there is a question as to how deep the conservation idea has penetrated our economy notwithstanding all the money that has been spent by government and industry in trying to promote it. In the oil industry itself where the penalty of wasteful practices is so clearly shown, few more than ten years have passed since we witnessed total collapse of conservation efforts. In spite of a well organized commission that had been devoting itself to oil and gas problems in Texas for more than 20 years, when the great East Texas oil field hit its stride in 1931, all machinery of the commission went out of gear for a time and oil flowed like so much water. Individuals, ignoring all principles of conserving oil, were determined to make the most of flush production as long as they could. For seven months operators drilled and produced as they pleased; the price of oil dropped to 10 cents per barrel; waste was rampant and the situation became so chaotic that there were dangerous threats to blow up wells and pipe lines. Martial law was necessary to get order restored. What irreparable damage was done to the producing formation of the field, limiting ultimate recovery of oil, no one will ever know. All this was in the face of a well developed set of laws designed to effectively control production of oil and gas.

Conservation as it is interpreted today is a comparatively late development as applied to oil and gas, though it had its beginnings more than 60 years ago. As the oil industry has grown, so has the realization of the importance of trying to control output to secure maximum recovery, but unfortunately the latter has not always been able to keep up with the former. The whole subject has been difficult because so many unknown factors have been involved, including the exceedingly debatable question of private rights versus public good.

However, in spite of the tediousness of the problem, fairly well outlined pattern of conservation thinking has resulted so that today most states where oil and gas are produced to attempt to control production. In order that the greatest possible recovery of these minerals be secured, various regulations are developed and enforced, aimed at the most equitable practices possible for the operator, and at the same time holding withdrawals of the oil and gas to levels that will protect all producing formations from wasteful or dangerous exploitation.

Certainly this concept has become basic with a predominant part of the oil industry. That it apparently is being ignored by those in position of highest authority in the government, is the most regrettable fact about the whole price mix-up. Because of its fundamental nature, it might also be added that failure to take full recognition of this fact is the most inexcusable of all mistakes that may have been made.

This threat to the established policy of conservation is the most dangerous and far reaching of all the bad effects accruing to the nation from refusal to remedy the domestic oil situation. As has been stated repeatedly, we do have enough oil to meet the present military requirements and to win the war. In his article on "Crude Oil Prices and Conservation," given before a recent meeting of the Interstate Oil Compact

Commission, John D. Gill, chairman of the study group of a PIWC committee on cost and price adjustment, declares that "If the American oil industry were forced to abandon completely the practice of conservation, as it might have been forced to do if our enemies had been more successful in their attempts to capture oil resources of other countries, it could produce much more. There would be no question of a shortage of oil with which to bring the war to an early successful termination and with the minimum loss of life and property of the United Nations. We could veritably deluge our enemies with petroleum."

The possible pay-off is flashed before us by this author when he continues by saying, "It is conceivable that in the event of an indefinite prolongation of the war, making ever-increasing demands upon the petroleum industry, that withdrawals each year would continue to exceed discoveries; would force the industry to resort to the rapid exhaustion of reserves by practies abhorrent to this commission, bringing about a loss of all, or most of the 20 billion barrels of reserves which the industry has husbanded through the practice of the principles of conservation. This is a possible price that the public would have to pay for the negation of the Petroleum Administrator's recommendation for a general crude-oil-price increase of 35 cents per barrel, which is less than 0.85 cents per gallon."

Bearing the brunt of this threat to conservation of our oil is the secondary "crop," or that part of production coming from secondary reserves where artificial recovery methods have to be used. How important these reserves are is shown by the following table:*

	(Millions of Barrels)		
STATE	Proved Reserves	Semi-proved and Marginal Reserves	Total Estimated Reserves
New York	107	123	230
Pennsylvania	425	360	785
West Virginia	147	170	317
Ohio	20	40	60
Kentucky	39	104	143
Illinois	18	208	226
Kansas	228	....	228
Oklahoma	249	344	593
Arkansas	0	444	444
Louisiana	36	107	143
Texas	59	911	970
New Mexico	0	10	10
Rocky Mtn. States	27	....	27
	1,355	2,821	4,176

Revised from Chapter 1, American Petroleum Institute's "Secondary Recovery of Oil in the United States," by various members of the Standing Subcommittee on Secondary-Recovery Methods.

Note: Estimation of semiproved and marginal reserves in Arkansas has not been accepted by the subcommittee and is subject to correction.

The magnitude of secondary-recovery activities has been determined by the API Standing Subcommittee on Secondary Recovery Methods. For 1942 figures indicated that these operations affected a minimum of 306,282 acres of oil-productive territory on which there were approximately 50,636 producing wells and 34,956 injection wells. About 1236 different projects were involved, located in 254 separate fields. Plant investment in this type of recovery is about $281,496,000, and the value of the oil produced last year was estimated at $84,000,000.

*From "Significance of Secondary Recovery in the United States," by Paul D. Torrey, The Oil Weekly, June 21, 1943.

The effect of price on the rate of secondary recovery is pronounced. As was pointed out by George H. Fancher, of the University of Texas, in "Secondary Recovery in Terms of the Engineering Problem," (The Oil Weekly, June 28) "A study if these factors in Pennsylvania-grade district has demonstrated that under a low price, only the better properties can be developed and operated, while under high prices of crude oil, poorer marginal properties are developed. For example, it has been shown that in one district of Pennsylvania alone, of a reserve of some 800,000,000 of barrels recoverable by known and practicable methods, only 30 percent can be recovered economically under present price conditions."

Since profit is the prime consideration in the operation of any oil property, the longer a sub-parity price prevails on crude, the greater the loss of reserves through abandonment of these small wells. A survey made by the National Stripper Well Association and the Interstate Oil Compact Commission discloses that between 1935 and the middle of 1942, 8,900 stripper wells were abandoned. In Oklahoma, for example, it is estimated that during that period the wells that were given up meant a loss of 20,542,000 barrels in reserves. This picture of the situation in Oklahoma, applies to many other sections of the country: "Thousands of persons are dependent on the stripper wells for their livelihood. Many towns of Oklahoma would become ghost towns if those pumping jacks ceased to bob up and down. Some 15 counties have no new fields, have not had in years, but these faithful old wells yielding from less than a barrel a day each and up to three or four barrels supply the lifeblood of the communities. Without them, business would be restricted to a small percentage of what it now is. In one county, the banker said that 90 percent of all the money that passed through his bank was oil money."

Should the backlog of reserves disappear, so would the stability of the oil industry. Immediately the industry and the public would become subjected to all the vicissitudes common to the early days of the oil business, violent changes in price, extreme hazards of discovery, wasteful exploitation of an essential natural resource—or strict governmental control of the industry from here on out. Either alternative would mean elimination of the oil industry as we know it, with incalculable losses to all concerned and with the public suffering most because of the inevitable high price would have to pay for its oil.

Benefits of a continuous cushion of reserves between supply and demands of crude oil cannot be too highly stressed. Although such a fundamental principle is involved that it appears trite to mention it, there is evidence that the principle may not be understood by many people in high places. As was stressed by Gill in his paper mentioned earlier, the ability of the industry to meet current military demands, or in other words the vast productive capacity of the industry, may be the reason for failure of many people to see any shortage of oil either now or in the future. This may even be the basis for OPA turning a practically deaf ear to the pleas for a price increase. If this be true, it is all the more appalling because it does denote positive misunderstanding of the very foundation upon which the industry has been built, that is the consistent accumulation of appreciable reserves through the automatic functioning of supply and demand and the application of conservation principles.

There is every reason to commend this principle, and few if any causes can be found why it should be condemned. Its validity is supported by the 20,000,000,000-barrel reserve at the beginning of 1943, a reserve accumulated with the industry operating under the principles mentioned above, and without which "the oil industry even now might be moving heaven and earth to discover and develop additional reserves with which to stave off the enemy."

The nature of oil is such that replacements for withdrawals from the earth have to come through new discoveries in other places, or through deeper drilling in old fields. Known future supplies cannot be blocked out and drawn upon as needed as is the case with other minerals like coal. Favorable looking lands become oil fields when the drill has revealed the presence of oil **and only then.** Also, frequently there is a long lapse between the time when "favorable looking" localities attract attention and the time when they become oil fields.

Truly, the issues involved in the price situation are great ones calling for our best in their solution. They are profoundly complex and demand straight thinking. They are too fundamental to the American public to permit foolish tampering. They are too vital to effective pursuance of the war to tolerate any further delay. They are too much a part of our oil industry to be misunderstood.

Skyrocketing War Needs Presage Early U. S. Oil Shortage

Increased output has not kept pace with growing demands and reserve stocks have been depleted below the point of security

By WARREN L. BAKER, Editor

SKYROCKETING military consumption of petroleum has wiped out practically all surpluses of oil in the United States. This country is now short on oil and its principal products, and is likely to be critically short by the spring of 1944 unless immediate steps are taken to alleviate the situation.

Such heavy demands are being imposed upon the industry by rising military requirements that even exceptionally sharp increases in the rate of producing oil have not enabled production to keep pace with consumption. Consequently, there have been continued large drafts on both crude oil and product stocks of late, and these stocks are reduced to such low levels that they give no assurance of security.

With military demand and domestic rationed requirements for oil already materially in excess of available supplies, the deficiency will continue to increase almost month by month through 1944, when the armed forces can be expected to use much larger quantities as fighting activity in both the European and Pacific theatres of war become more intensive, and when the producing ability of the nation is likely to be smaller because new sources are not being developed as rapidly as oil is being produced.

The seriousness of the production outlook is best indicated by forecasts of future requirements. Whereas total ration requirements and military demand for the third quarter of 1943 were slightly more than 4½ million barrels daily, the economic committee of the Petroleum Industry War Council foresees a consumption of 5 million barrels by the first quarter of 1944. This prediction of another half million barrel gain in consumption within three to six months becomes especially significant when it is considered that all districts of the nation are now thought to be producing at their maximum efficient rate, except West Texas, which is estimated to have another 250,000 barrels of as yet unused production capacity.

Production of Major Refined Products

(Based on Bureau of Mines data, except for last two months of 1943, which are estimated with the aid of API weekly statistics).

	Gasoline	Distillate or Gas-Oil Fuels	Residual Fuel Oil
First 9 mos. 1941	503,854,000	139,251,000	250,703,000
First 9 mos. 1942	456,698,000	142,221,000	264,461,000
First 9 mos. 1943	435,000,000	152,000,000	307,000,000
Change:			
In year	—21,698,000	+9,779,000	+42,539,000
In year	—4.7%	+6.8%	+16.0%
In 2 years	—68,854,000	+12,749,000	+56,297,000
In 2 years	—13.6%	+9.1%	+22.4%

Showing a 100,000-barrel gain in daily output for the second consecutive month, United States production of crude oil in September established another all-time peak. Daily average yield was 4,337,000 barrels, which represented a gain of 120,000 barrels over the preceding month, 200,000 barrels above the prewar record level, almost a half million barrels greater than a year ago, and 735,000 barrels more than in April, 1942, which was the low point reached after the nation's entry into war.

Production in October will be at another new record high, PAW having issued certifications for 4,638,700 barrels of petroleum liquids, including 4,373,000 barrels of crude oil. Of late, crude production has been exceeding PAW allocations, so it is to be expected that actual output will be very close to 4,400,000 barrels per day this month.

During the first nine months of this year, the United States has produced 1,097,661,000 barrels of oil, 69,000,000 barrels, or 6.7 percent more than in the corresponding periods of 1942 and 1941. Thus, it appears that the United States' annual production will reach 1½ billion barrels for the first time in history.

It is this record volume of production in recent months that has resulted in the lifting of producing rates to maximum efficient levels in all areas but West Texas.

United States Crude Oil Production and Crude Oil Stock Trends

	CRUDE PRODUCTION				CRUDE STOCKS			
	Monthly Total		Daily Average		End of Month		Change in Month	
MONTH	1943	1942	1943	1942	1943	1942	1943	1942
January	117,227,000	128,262,000	3,781,500	4,137,500	234,423,000	253,531,000	+69,000	+ 6,647,000
February	108,399,000	113,961,000	3,871,400	4,070,000	237,075,000	260,844,000	+2,652,000	+ 7,313,000
March	121,560,000	114,473,000	3,921,300	3,692,700	242,181,000	261,832,000	+5,106,000	+ 988,000
April	119,000,000	105,053,000	3,966,700	3,501,800	242,934,000	257,761,000	+ 753,000	— 4,071,000
May	123,854,000	110,192,000	3,995,300	3,554,600	243,880,000	254,577,000	+ 946,000	— 3,184,000
June	119,302,000	108,595,000	3,976,700	3,619,800	240,601,000	251,421,000	—3,279,000	— 3,156,000
July	127,493,000	111,782,000	4,112,700	3,605,900	238,346,000	245,026,000	—2,255,000	— 6,395,000
August	130,702,000	120,429,000	4,216,200	3,884,800	235,513,000	244,125,000	—2,833,000	— 901,000
September	130,124,000	115,801,000	4,337,400	3,860,000	*233,013,000	240,043,000	—2,500,000	— 4,082,000
Total 9 mos.	1,097,661,000	1,028,548,000	4,020.7	3,767.5	.....	.....	—1,410,000	—13,488,000

Figures for last two months of 1943 are preliminary.
* September crude oil stocks are for week ended September 25, 1943.

Stocks Still Decline

Despite the sharply enlarged rate of producing oil and civilian rationing, consumption has continued to exceed available supplies.

Since the end of May, crude oil stocks have declined 12 million barrels and now stand at 233 million barrels, which is at approximately the same level reached in 1939 when many Mid-Continent fields shut down in protest to fluctuations in price schedules. This is near a 20-year low. Crude stocks continued to drop even during August and

What's Behind the Trade Mark?

QUALITY

TRADE MARK

YOUNGSTOWN

SERVICE

Strength for a National Emergency

IN the period of World War I, The Youngstown Sheet and Tube Company "came of age."

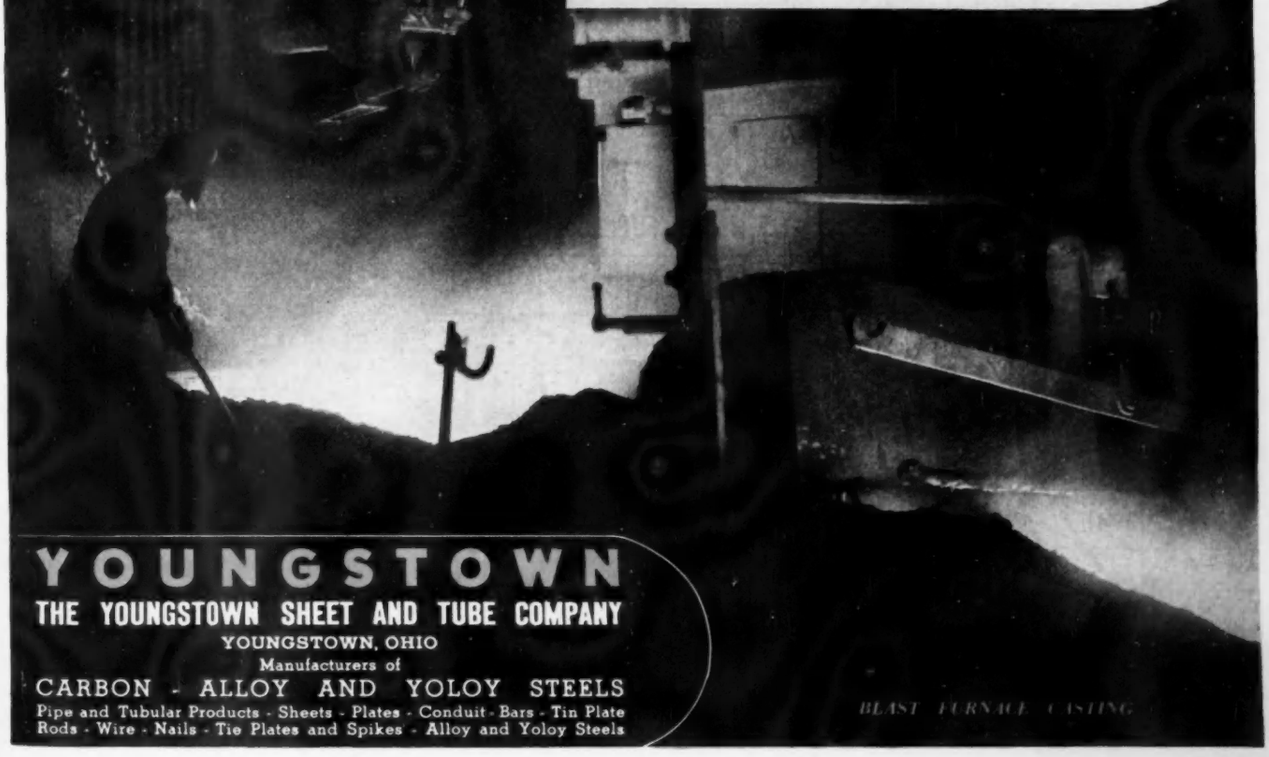
1915 began in depression--with fear and uncertainty at home and abroad. But that courage and vision which built Youngstown into a $20,000,000 corporation in 15 years, now brought a 50% increase in capital stock and a huge construction program. The next three years saw a modern, integrated plant completed--3 new open hearths, another blast furnace, batteries of coke ovens, additional finishing mills, new laboratory, hospital, works office building, hundreds of homes for employees. When war ended, nearly $39,000,000 of stockholders' money had been plowed into plant and facilities.

The decision to expand was timely. French and British orders came with a rush in mid-1916. After April 1917, America and her Allies demanded and received every possible pound of steel to win the war.

In those events we see a familiar pattern--tremendously increased production, labor scarcity, high wages, taxes taking 80% of profits. But fortunately the American system of private enterprise was enabling Youngstown to earn good profits--sufficiently high to pay off all its bonded indebtedness, to pay generous dividends to stockholders and to fortify itself with reserves which enabled it and its employees to survive the lean early '20's.

Free enterprise, which made the steel industry strong, won that war for America and democracy, and built the business system on which we must depend for national survival today

Historical Series - - - No. 7



BLAST FURNACE CASTING

YOUNGSTOWN

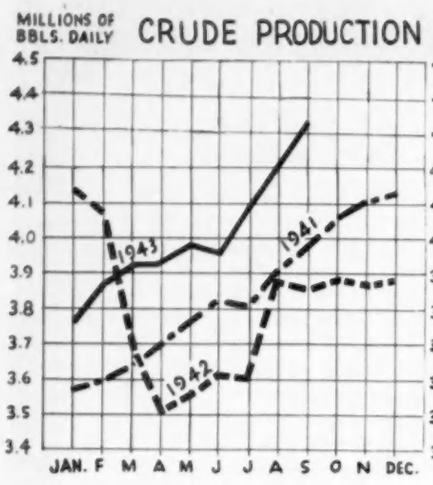
THE YOUNGSTOWN SHEET AND TUBE COMPANY

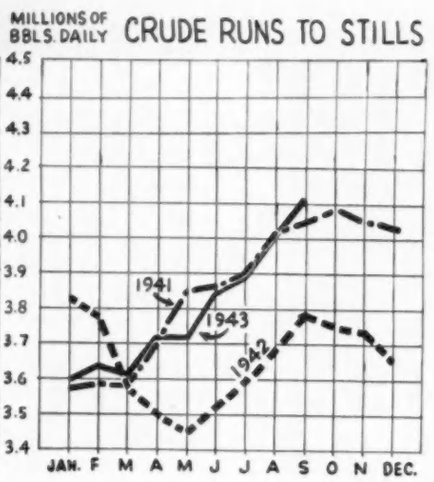
YOUNGSTOWN, OHIO

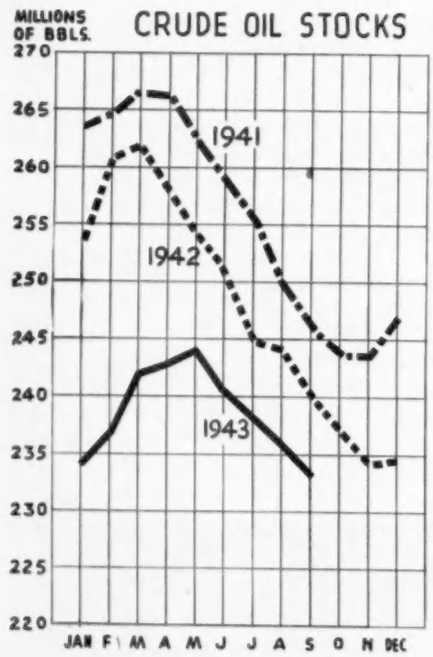
Manufacturers of

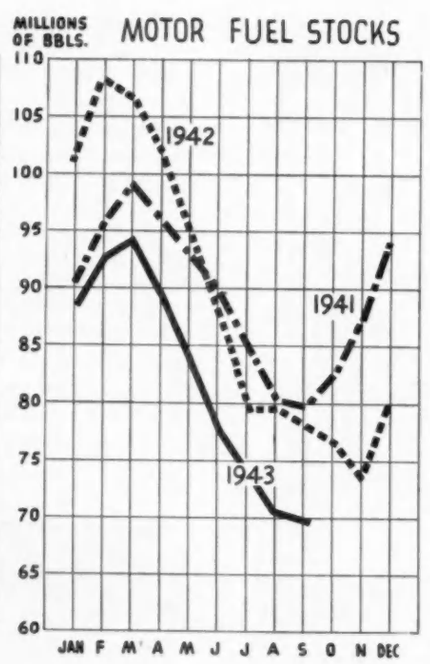
CARBON - ALLOY AND YOLOY STEELS

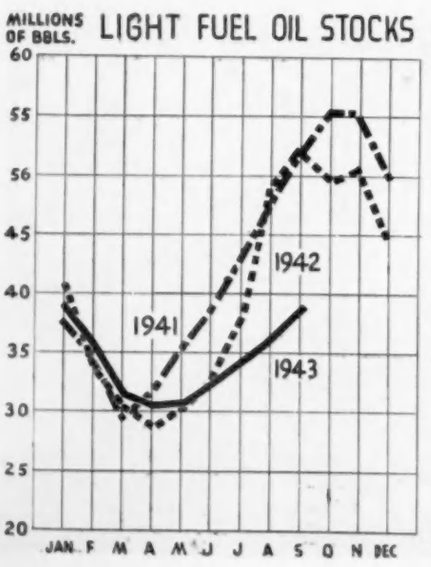
Pipe and Tubular Products - Sheets - Plates - Conduit - Bars - Tin Plate
Rods - Wire - Nails - Tie Plates and Spikes - Alloy and Yoloy Steels

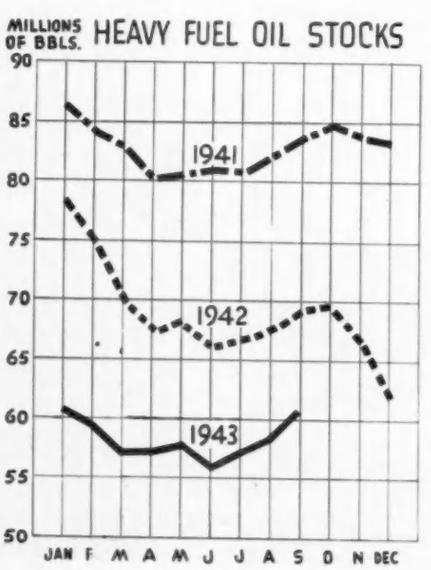












September, when production was at an all-time peak. In both months they dropped about 85,000 barrels per day.

There is even a shortage of gasoline, skyrocketing military consumption of gasoline having wiped out all surpluses created by rationing, and there are prospects of critical shortages of this commodity by next spring. The armed forces now are using nearly 1 gallon of gasoline in every 3 produced east of the Rockies. A year ago, only 1 gallon out of every 8, or 12.5 percent, went to military forces. Soon, total war needs are expected to jump to nearly 4 gallons in every 10 manufactured, or 40 percent.

Meanwhile, gasoline production has fallen off drastically, because more and more of that part of each barrel of crude oil that formerly went into automotive fuel is now going into aviation gasoline, into toluene, into butadiene for synthetic rubber, and into fuel oil for the expanding Navy and merchant fleet, as well as industrial consumption.

Despite domestic rationing, motor-fuel demand in September is estimated to have exceeded that month in 1942 by 5 percent, and consequently stocks of gasoline, or motor fuel, stand at the lowest level in years, now totaling but 70 million barrels. This represents only a 40-day supply, and is 20 million barrels less than was in storage the end of April this year, and 9 million under a year ago.

Production of gas-oil and distillate-fuel has been boosted to all-time peak levels, but stocks currently total but 40 million barrels, which is 10.9 percent under a year ago and 19.2 percent below two years ago. Since the end of March, these stocks have increased but 10 million barrels; in contrast they grew 18 million barrels during the same period of 1942. Residual or heavy-fuel oil also has been produced in record volume. Production of this commodity during the first 9 months of the year was 14 percent greater than a year ago, but stocks are down 11¼ million barrels or 14 percent under a year ago, and 29 percent below two years ago, when 20 percent less was manufactured.

There has been practically no change in heavy fuel-oil stocks since the end of March, whereas in normal times large quantities would be going into storage during the spring and summer months. The production of both distillate and residual-fuel oils is at an all-time record level, and consequently the unfavorable stock trend indicates the exceptionally large gain that has taken place in consumption of these products.

Texas Output Up

Most of the recent crude-oil production increase is due to gains in Texas output, which have been boosted sharply from curtailed low points of 1942 with

Café Society

DOG HOUSE STYLE

• There's no caviar or pâté de fois gras on the menu in an oil field Dog House—just plain meat and potatoes. Conversation likewise is down to earth and factual. It is here that begrimed men of the oil field—the Black Gold authorities who really know—relax and talk about the merits of the equipment they use.

Their opinion, *based on working performance alone, is the very last word. The fact that Spang Extreme Line Casing has been approved in hundreds of Dog House discussions is the finest acceptance that this product could have.

*FIELD ADVANTAGES OF SPANG EXTREME LINE CASING

HANDLING IN DERRICK:

1. Easy to stab and cannot be cross threaded.

2. When stabbed requires only 5 to 7 revolutions with spinning line (one pull on the cathead) and less than one turn (4 to 8 jerks) with the tongs.

3. End to shoulder contact insures proper makeup—cannot be harmfully overtonged (except intentionally).

4. Can be run at rate of 1,000 feet to 1,500 feet per hour, in range 3, as compared with 600 feet to 900 feet per hour for same range threaded and coupled casing.

5. Can be broken out and rerun with no rejections from galling or other injuries short of accidental denting.

6. Fluid seal protected by extending reinforcing ring..

LEAK RESISTANCE

100%—Pipe will collapse from external pressure or will expand beyond yield point from internal pressure without leakage at the joint; even when the pipe is subjected to heavy loads in bending or tension.

STREAMLINED

(Advantages over threaded and coupled)

1. No shoulders to hang-up on projections in the hole, or to scrape mud seal from walls of the hole.

2. Low friction in running in or out of hole.

3. Requires less pressure, after setting, to "break circulation."

4. Smoother flow of cement and, therefore, greater certainty of a good job of cementing.

5. Can be run against pressure through packing.

WASHOVER PIPE

On account of very high torsional strength this joint is ideal for use in washing over stuck pipe and may be run and rerun many times.

DRILLING CASING

Extreme Line Casing designed with slightly greater diameter at the joint, to increase joint efficiency and to give still greater resistance to torsion can be rotated in a manner similar to drill pipe.

SPANG-CHALFANT

Division of The National Supply Co.

Executive Offices: Pittsburgh, Pa.

Sales Offices: Pittsburgh, Pa.; Los Angeles, San Francisco, Calif.; Tulsa, Oklahoma; Dallas, Houston, Texas. Export: The National Supply Corporation, 30 Rockefeller Plaza, New York, N. Y., U. S. A.; River Plate House, 12 South Place, London, E. C. 2.

U. S. Stocks of Major Petroleum Products at End of September

(Thousands of Barrels)

REFINING DISTRICT	Sept. 27, 1941	Sept. 26, 1942	Sept. 25, 1943	Percent Change From 2 Years Ago	Percent Change From 1 Year Ago
Gasoline: (Finished and Unfinished):					
East Coast, Texas, Louisiana and Arkansas	41,773	38,897	30,534	— 26.9	— 2.31
Appalachian	3,261	2,850	2,318	— 28.9	— 18.6
Indiana, Illinois, Kentucky, etc.	14,452	14,143	13,594	— 5.93	— 3.88
Oklahoma, Kansas, Missouri	6,847	6,558	6,203	— 9.4	— 5.41
Rocky Mountain	1,005	1,774	1,248	+ 24.1	— 29.6
California	13,665	16,418	16,127	+ 18.0	— 1.77
Total United States	81,003	80,550	70,024	— 13.6	— 13.1
Gas Oil and Distillate:					
East Coast, Texas, Louisiana and Arkansas	28,324	23,336	18,723	— 33.8	— 19.8
Appalachian	637	699	880	+ 38.1	+ 25.8
Indiana, Illinois, Kentucky, etc.	5,736	6,330	5,944	+ 3.6	— 6.1
Oklahoma, Kansas, Missouri	2,187	1,961	2,264	+ 3.5	+ 15.5
Rocky Mountain	131	449	445	+239.6	— .89
California	12,935	12,484	12,072	— 6.6	— 3.3
Total United States	49,950	45,259	40,328	— 19.2	— 10.9
***Residual Fuel Oil:**					
East Coast, Texas, Louisiana and Arkansas	23,837	18,537	18,430	— 22.6	— .58
Appalachian	523	517	459	— 12.2	— 11.2
Indiana, Illinois, Kentucky, etc.	4,504	3,527	3,406	— 24.3	— 3.4
Oklahoma, Kansas, Missouri	2,015	1,334	1,577	— 21.7	— 18.2
Rocky Mountain	397	556	762	+ 91.9	+ 37.1
California	63,975	54,472	43,011	— 32.7	— 21.1
Total United States	95,251	78,943	67,645	+ 28.9	— 14.3

Fluctuations in Crude Stocks, by Grade or Origin, Since Pearl Harbor

(Thousands of Barrels)

GRADE OR ORIGIN	Outbreak of War for U.S. Dec. 13, 1941	High for 1942-1943 (Mar. 28, 1942)	Low for 1942-1943 (Dec. 12, 1942)	Current Data Sept. 25, 1943	Change from Mar. 28, 1942	Change from Dec. 12, 1942
Pennsylvania Grade	3,633	3,431	3,054	2,643	— 788	— 411
Other Appalachian	1,529	1,522	1,356	1,540	+ 18	+ 184
Lima-Michigan	1,233	1,549	1,208	1,051	— 498	— 157
Illinois-Indiana	18,243	19,337	9,494	11,642	— 7,695	+ 2,148
Arkansas	2,591	2,977	2,068	2,858	— 119	+ 790
Kansas	7,400	7,696	6,898	8,230	+ 534	+ 1,332
Louisiana	12,348	13,669	12,732	13,569	— 100	+ 837
Northern	3,849	4,223	4,745	4,383	+ 160	— 362
Gulf Coast	8,499	9,446	7,987	9,186	— 260	+ 1,199
Mississippi	2,202	2,445	1,174	1,080	— 1,365	— 94
New Mexico	6,781	7,510	5,622	8,035	+ 525	+ 2,413
Oklahoma	51,562	50,513	40,111	35,285	—15,228	— 4,826
Texas	81,676	96,123	102,130	101,897	+ 5,774	— 233
East Texas	20,549	23,677	24,468	22,843	— 834	— 1,625
West Texas	18,070	23,961	24,252	22,933	— 1,028	— 1,319
Gulf Coast	23,935	25,889	28,388	30,759	+ 4,870	+ 2,371
Other Texas	19,122	22,596	25,022	25,362	+ 2,766	+ 340
Panhandle	.....	.....	4,670	6,198	.....	+ 1,528
North	.....	.....	7,491	6,026	.....	— 1,465
South	.....	.....	4,879	5,089	.....	+ 210
Other	.....	.....	7,982	8,049	.....	+ 67
Rocky Mountain	16,267	16,628	13,934	12,762	— 3,866	— 1,172
California	34,574	38,454	31,965	31,874	— 6,580	— 91
Foreign	2,644	1,354	150	547	— 807	+ 397
Total Gasoline-bearing in U. S.	242,683	263,208	231,896	233,013	—30,195	+ 1,117
Heavy in California	10,128	11,336	10,607	9,862	— 1,474	— 745

the completion of overland pipe systems to the East Coast. Outside of Texas, California is the only other major producing area to show substantially larger production.

Texas produced 1,829,000 barrels per day during September, a gain of 330,000 barrels in daily rate since June, and almost 750,000 barrels per day more than in April, 1942. These gains are essentially the same amount of increase the nation has shown. During the first nine months of this year, Texas has produced 416,434,000 barrels of oil, 17.1 percent more than in the corresponding period of 1942. Considerable oil went to storage in this state despite its reduced production level, stocks or crude petroleum rising 22 million barrels during the year to 104 million. Although production has been much higher this year, the state's above-ground inventories have been reduced by slightly more than 2 million barrels.

California production currently is averaging 780,000 barrels daily, which is 143,000 barrels above its rate in April, 1942. During the first 9 months of this year, California has produced 17.4 percent more oil than in 1942. Stocks of crude oil, gasoline and light fuel oils on the West Coast have shown practically no fluctuation this year, but heavy-fuel-oil stocks are down 11½ million barrels from a year ago.

Louisiana is the only other state producing substantially more oil now than at the beginning of the year. September production in Louisiana averaged 359,800 barrels per day, or 36,100 barrels more than in January.

Oklahoma, Illinois and Kansas are producing less oil today than in January. Illinois production is down 20,000 barrels daily, Oklahoma off 14,000 barrels, and Kansas has dropped 9000 barrels. Both Illinois and Oklahoma crude-oil stocks have dropped materially since March.

Crude Oil Production Trend By States

Data in thousands of barrels. From Bureau of Mines, except August and September, 1943, from American Petroleum Institute.

STATE OR DISTRICT	WARTIME FLUCTUATIONS IN DAILY AVERAGE PRODUCTION: Peak Before U. S. Entry in War: Dec., 1941	Low After U. S. Entry in War: April, 1942	Jan., 1943	June, 1943	Sept., 1943	PRODUCTION IN FIRST NINE MONTHS, 1942-1943: Total Amount 1942	Total Amount 1943	Daily Average 1942	Daily Average 1943	Percent Difference
Arkansas	74.3	71.6	73.9	76.8	76.6	19,880	20,376	72.8	74.6	+ 2.4
California	631.9	637.5	764.1	776.0	780.5	180,086	211,505	659.6	774.7	+ 17.4
Colorado	6.1	5.7	6.4	6.3	7.1	1,649	1,725	6.0	6.3	+ 5.0
Illinois	397.8	301.6	238.7	222.7	218.9	82,760	61,882	303.1	226.6	—25.2
Indiana	18.6	19.8	15.6	14.5	14.2	5,236	4,010	19.1	14.6	—23.5
Kansas	256.7	249.8	295.2	288.2	286.6	70,826	81,412	259.4	298.2	+14.9
Kentucky	12.7	11.9	16.3	22.1	24.3	3,169	5,644	11.6	20.6	+77.5
Louisiana	347.4	306.8	317.7	323.0	359.8	87,239	92,065	319.5	337.2	+ 5.5
Michigan	56.8	62.5	57.6	57.2	57.4	16,109	15,799	59.0	57.8	— 2.0
Mississippi	70.5	96.2	57.0	53.7	49.2	22,891	14,594	83.8	53.4	—36.2
Montana	22.0	22.0	18.6	21.9	21.6	6,034	5,731	22.1	20.9	— 5.4
Nebraska	5.1	3.9	2.1	1.9	1.7	994	542	3.6	1.9	—47.2
New Mexico	112.2	67.3	96.7	105.0	107.7	22,964	27,892	84.1	102.1	+21.4
New York	15.1	15.3	13.5	14.6	14.0	4,081	3,851	14.9	14.1	— 5.3
Ohio	9.9	10.6	8.2	9.5	8.8	2,687	2,457	9.8	9.0	— 8.1
Oklahoma	427.6	389.6	340.5	339.0	326.3	106,837	92,133	391.3	337.4	—13.7
Pennsylvania	49.3	52.7	43.8	45.6	43.7	13,530	12,115	49.5	44.3	—10.5
Texas	1,532.3	1,081.0	1,320.7	1,498.4	1,829.1	355,388	416,434	1,301.7	1,525.3	+17.1
West Virginia	9.8	10.4	9.5	9.9	9.1	2,708	2,522	9.9	9.2	— 7.0
Wyoming	82.2	85.4	85.2	90.3	100.7	23,433	24,957	85.8	91.4	+ 6.5
Others	0.2	0.2	0.2	0.1	0.1	47	32	0.2	0.1	—50.0
Total United States	4,138.5	3,501.8	3,781.5	3,976.7	4,337.4	1,028,548	1,097,678	3,767.5	4,020.7	+ 6.7

Today's Interesting Tools

The Gyroscopic Clinograph

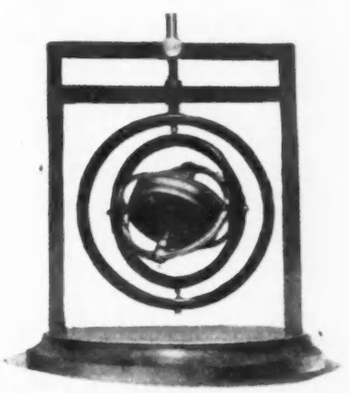
By G. L. KOTHNY, Vice President,
Sperry-Sun Well Surveying Company

CONSERVATION of resources is now more necessary than ever due to existing conditions. In drilling practice, conservatism is likewise coming to the front, and efficient drilling rather than rapid drilling is the new trend in field practice. Every effort is made not only to drill straight holes, but to have complete knowledge of the course of the hole and the exact location of the bottom of the hole. Such information is obtained by making a directional survey of the hole. It permits the oil producer to check on the proper spacing of the bottom of the wells or the proper spacing in several producing horizons. It provides the producer with the assurance that the well is not drifting away into the land of another and that he will not be liable for trespass and for conversion of oil taken from another's land. It will further provide him with information to apply the necessary remedies to correct the course of a crooked hole, to avoid increased cost of production due to improper drainage, rapid wear of pumping equipment, frequent break-downs, etc.

The value of making underground well surveys was recognized more than 70 years ago, at which time a combination of acid bottle and compass arrangement was used for surveying a coal mine shaft. Since that time a multitude of various types of surveying instruments have been developed, involving acid, paper, chemicals, photographic devices, electrical measurements, plumb bobs, liquid siphons, magnetic compasses and the gyroscope. Only a few of them have survived as they did not meet the requirements to obtain reliable results which are:

1. The design and construction of the instrument must be such as to produce true records with sustained accuracy.
2. Ability for self-checking (i.e., if false records are produced the instrument must provide means for recognizing them as such).
3. Making records automatically, thus eliminating the possibility of human errors.
4. Producing clear and easily interpretable records.
5. Speedy operation to make loss of rig time as low as possible.
6. Ample recording capacity to make possible two surveys, one on the in and one on the out run, thus providing a check of the accuracy of the survey.

The gyroscopic clinograph possesses all these essential characteristics. It is the only well-surveying instrument which records inclination and direction



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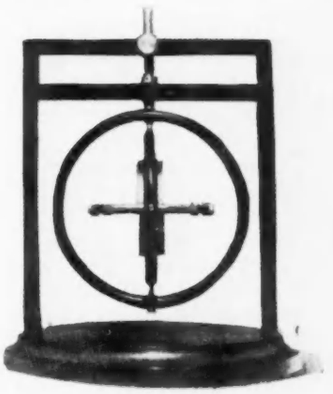

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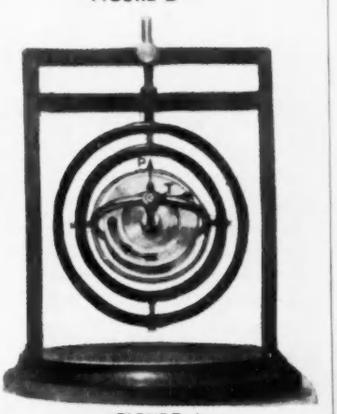

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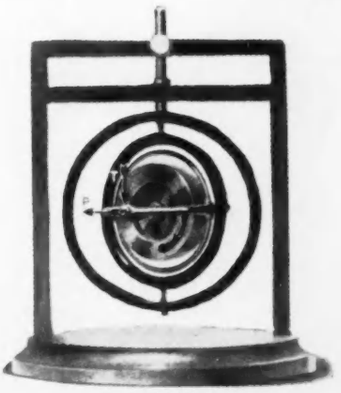

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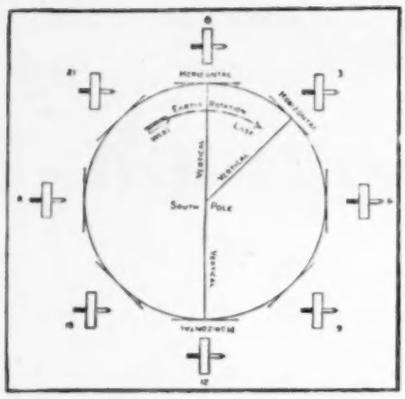


FIGURE 6

of the inclination in a cased hole, and makes such records accurately and quickly.

Principles of the Gyroscope as Applied to the Gyroscopic Clinograph

The principles of operation of the gyroscopic clinograph are somewhat similar to the toy gyroscope procurable at any ten-cent store and an explanation of these principles may be of interest.

The gyroscopic clinograph does not apply a gyroscopic compass such as is used on board ships, but utilizes the two principal characteristics of the gyroscope for recording directions of bore holes.

A gyroscope is a rotating wheel supported in such a manner as to be free to move about all axes—its spinning axis; its vertical axis and its horizontal axis (Figure 1). If we take such a rapidly spinning wheel (Figure 2) and tip the supporting base (Figure 3) the original plane of rotation will be maintained regardless of the movement of the supporting base, provided no appreciable torque is applied to the gyroscope by reason of friction about either the horizontal or vertical axis of support. This characteristic or first property of the gyroscope is called rigidity, i.e., its tendency to maintain its plane of rotation fixed in space.

FIGURE 8

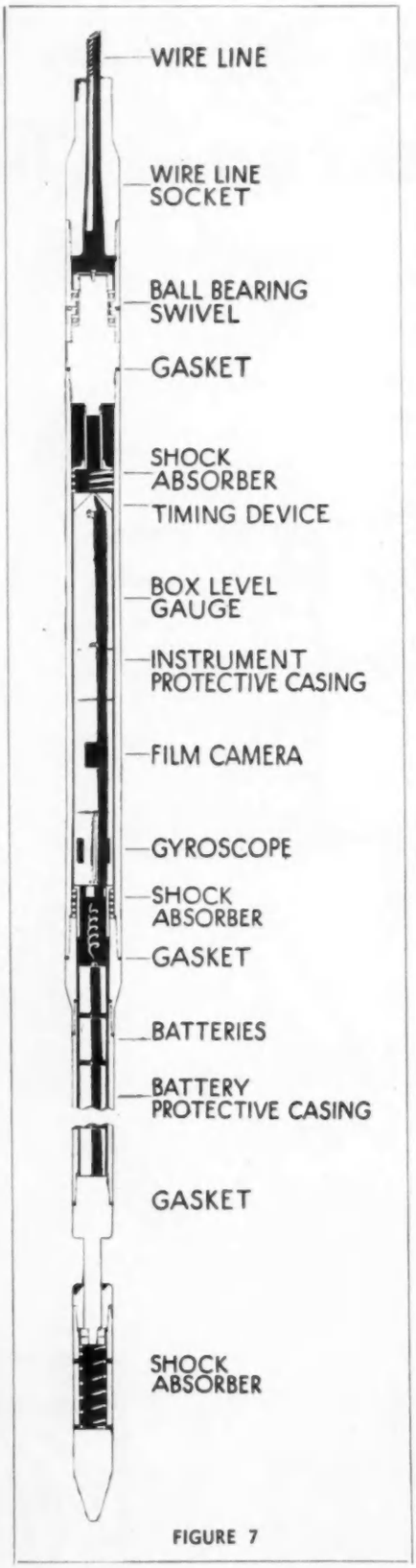


FIGURE 7

The second characteristic of the gyroscope is precession, i.e., its tendency when subjected to torque (rotational force to turn about on axis at right angles to the axis of the torque. The characteristic of precession may be illustrated by applying a torque to the spinning wheel, which meets with great resistance, and instead of motion taking place in the direction of the applied torque (Figure 4) the wheel turns around its vertical axis in the direction indicated by the Arrow—P.

Correspondingly, if we apply the torque around the vertical axis, the wheel will move around the horizontal axis as indicated by P (Figure 5). The direction of precession is always 90° away in the direction of the wheel's rotation.

Due to the rigidity in space and the earth's rotation, the gyroscope will appear to move at the rate of one revolution in 24 hours (Figure 6), and if mounted on the surface of the earth at the equator it will appear to move about the earth's horizontal; if placed at the North or South poles it would not move about the horizontal but would appear to move about the vertical; and at any point between the poles and the equator it would appear to move partly about the horizontal and partly about the vertical.

By applying the second characteristic, i.e., precession, a gyroscope can be used as a directional indicator of the true north-south meridian. All that is necessary is to balance the gyroscope in such a way that its reaction to the rotational motions of the earth are controlled.

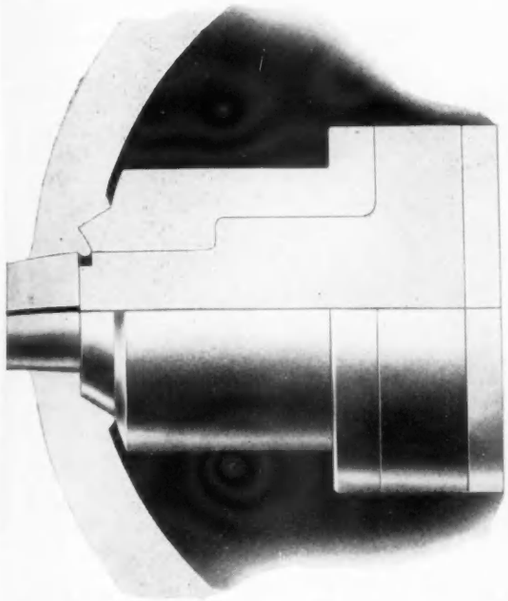
Description of the Gyroscopic Clinograph

The gyroscopic clinograph consists of three units, namely the gyroscope, the camera, and the inclination unit, all three of which are assembled inside of steel protective casing (Figure 7) in the

FIGURE 9

PERFORATOR SERVICE

Mechanically Operated • No Explosives
Operation Completed Under Pressure at Any Depth with Ordinary Steel Measuring Line



TAPER OF INSERT AND CRIMPING PROVIDES POSITIVE LOCK

This quarter section drawing shows the insert being thrust through the tubing wall. It illustrates the taper that, combined with the crimping, locks the insert securely in place in the tubing wall.

The OTIS Wire Line Tubing Perforator is a mechanical tool run into the tubing under pressure on an ordinary steel measuring line. By manipulating the wire line, the removable stop on the lower end of the perforator can be set at the desired depth, thereby permitting perforations to be made anywhere in the tubing string. The stop serves as a base for the perforator to work against.

With the use of regular tubing jars, a small hardened steel insert containing an orifice is driven through the tubing walls. The sizes of the orifice range in diameter from 1/32" to 5/32". If a greater capacity is desired than will pass the largest insert, several inserts may be installed, or the insert can be omitted altogether and a larger orifice punched directly through the tubing wall.

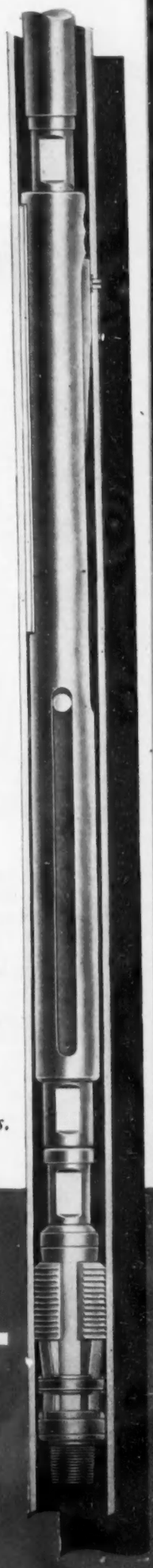
The complete tool is released by a few upward motions of the jars, the entire operation requiring only a few hours

GENERAL PERFORATING PRACTICE

The most common reasons for perforating tubing are as follows:

1. **To utilize gas from the annular space to assist oil to flow in the tubing string.**
2. **To provide gas lift jets without pulling tubing when a well is to be put on gas lift.**
3. **To make possible circulation above a stuck packer.**

This tool is not sold but is available with an OTIS *Wire Line Service Unit on a rental basis. Write for details.*



PRESSURE CONTROL — OTIS — SERVICE — EQUIPMENT

OTIS PRESSURE CONTROL, INC.

DALLAS, TEXAS

Branches: **Houston and Corpus Christi, Texas; Hobbs, New Mexico; New Iberia, Louisiana; Magnolia, Arkansas**

Representatives: **Otis Eastern Service, Inc., Wellsville, New York; Western Pressure Control, Los Angeles and Bakersfield, California**

Export Office: **74 Trinity Place, New York City**

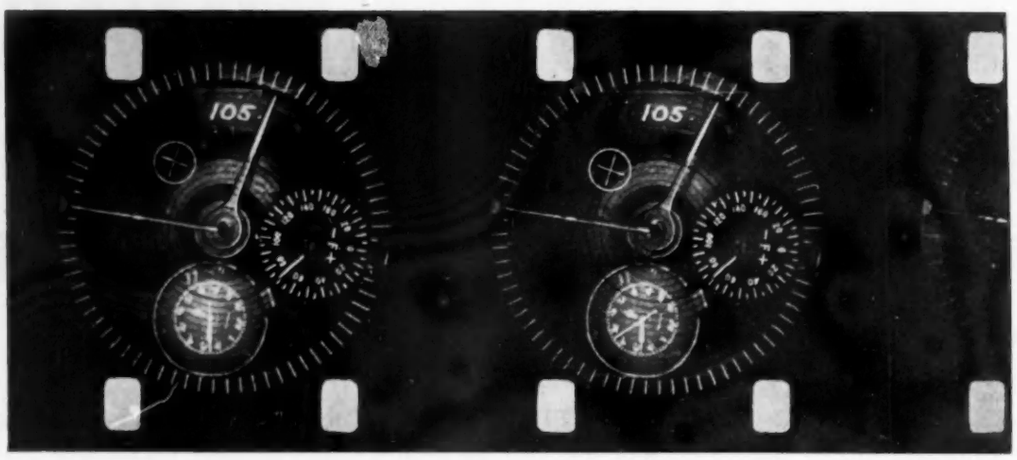


FIGURE 10

order named, the gyroscope being at the bottom.

The gyroscopic unit (Figure 8) consists of a small, heavily weighted rotor, driven by a direct-current motor, which operates at approximately 10,000 revolutions per minute. Attached to the top of the vertical axis of the gyroscope is a pointer pointing in the same direction as the axis of the gyroscope. This pointer is arranged above the gyroscope within a compass scale inside of which there is also a watch for the purpose of indicating the time at which each picture was taken and a thermometer recording the temperature prevailing in the space surrounding the gyroscope.

The camera unit (Figure 9) uses a 16 mm. film and two lens barrels pointing in opposite directions; one towards the surface of the gyro and the other towards the inclination unit. The camera is of the movie type and is operated by a separate motor. The operation of this motor, as well as the illumination, is controlled by a mechanically operated timing device. On the film (Figure 10) are recorded: direction and inclination of the hole, the time in seconds at which the record was taken, and the temperature inside of the instrument.

FIGURE 11

The inclination unit consists of a box level gauge (Figure 11) or a cross-hair pendulum. The three units are assembled inside a high-pressure steel case which has a maximum outside diameter of 5½ inches and is made up in three joints screwed together. The two lower joints carry the dry-cell batteries which form the power plant for the operation of the gyroscope, the camera motor and the illumination. The case is built to withstand hydrostatic pressures up to 8000 pounds per square inch.

The gyroscopic clinograph contained in a steel case is lowered into the open hole on the drill stem or on tubing, and in cased holes it is lowered on a wire line. When run on the drill stem or on the tubing, records are made at each stand of the pipe going in as well as coming out of the hole. If run on a wire line, records are made at every 100 feet or at less depth intervals if so desired going into as well as coming out of the hole. Two surveys are always made in one round trip, and each survey is interpreted independently from the other, thus providing a check or a "closed traverse."

The balance of the gyro is checked by making drift tests determining the amount, as well as the rate of any drift (should such drift occur), before entering the hole, when reaching the bottom of the hole and when coming out of the hole. If any drift is observed, the amount and its rate is determined and corrections are applied when interpreting the records.

Interpretation of the survey is made

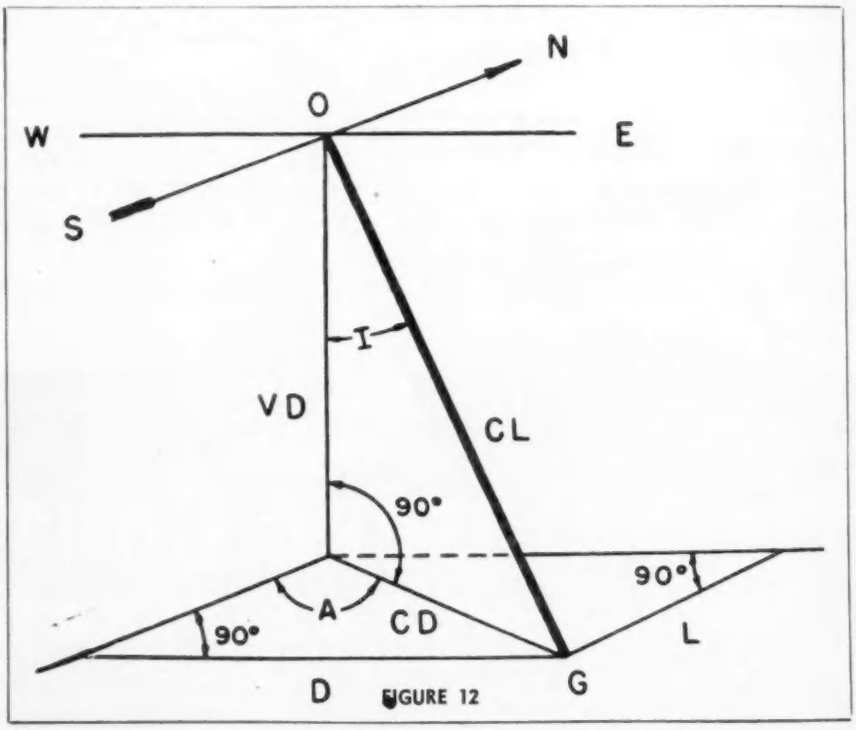


FIGURE 12

BETTER GEARS FOR TOMORROW'S SKYLINERS

A new era in transportation is on the way! Already skyliners of the future are past the experimental stage, and tomorrow promises a world of short distances—a world where Bagdad and Cairo, Moscow and Budapest will be little more than sleeper jumps from New York.

The giant engines to power these airliners of the future are today a reality. The war's end will find them ready to take over the transportation problems of a world at peace.

Making gears for these engines is Foote Bros.' job. And these gears represent a new advance, both in gear design and gear manufacture. For transmitting the great loads developed by modern aircraft engines demands heretofore unheard-of standards of precision—a precision that must, of necessity, be coupled with extreme lightness. Today these gears are rolling off Foote Bros.' production lines in amazing quantities—gears that mark a revolutionary development in the transmission of power.

When the war is won and these new gears can be produced for peacetime industry, they give promise of new efficiency—new economy to American manufacturers, whether they be applied to skyliner engines or machine tools, farm machinery or motor cars.

FOOTE BROS. GEAR AND MACHINE CORPORATION
5225 South Western Boulevard • Chicago, Illinois

FOOTE BROS.

Better Power Transmission Through Better Gears

SPERRY-SUN WELL SURVEYING CO

SURVEY TABULATION SHEET

SHEET NO. 1

JOB NO. HOU-1943-SUR

DATE JAN. 15, 1943

	MEAS. COURSE LGTH.		ANGLE OF INCL.	VERTICAL DEPTH			BEARING ANGLE			100' COURSE UNIT				MEASURED COURSE				ACTUAL AT POINT OF DEPTH				NOTES
	COURSE	TOTAL		100' COURSE	COURSE	TOTAL	OBSERVED	CORRECTION	TRUE	LATITUDE L		DEPARTURE D		LATITUDE L		DEPARTURE D		LATITUDE L		DEPARTURE D		
	CL	ΣCL	I	VD	VD	ΣVD	A		A	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	
	1	2	3	4	5	6	7	8	9	10		11		12		13		14		15		16
1	100	100	1	99.98		99.98	N 82 E	+0	N 80 E	1.51		.97						1.51		.97		
2	100	200	1 1/2	99.96		199.96	N 72 E	+0	N 80 E	.28		2.15						1.80		3.02		
3	100	300	2	99.94		299.90	S 78 E	+0	S 70 E		1.19	1.38						.70		4.30		
4	100	400	2 1/2	99.90		399.82	S 53 E	+0	S 40 E		2.78	2.78							2.08	6.08		
5	100	500	3 1/2	99.79		499.61	S 12 E	+0	S 4 E		0.53	.46							0.61	6.54		
6	100	600	4 1/2	99.60		599.30	S 56 W	+0	S 64 W		3.44		7.05						12.05	6.49		
7	100	700	5	99.40		698.70	S 88 W	+0	S 84 W	1.09			10.40						10.98		7.91	
8	100	800	5 1/2	99.00		798.41	N 23 W	+0	N 15 W	5.00			2.19						5.98		10.08	
9	100	900	6	98.65		897.66	N 2 W	+0	N 6 E	1.040		1.09						7.44			8.98	
10	89	989	5	88.62	04.68	902.34	N 27 E	+0	N 35 E	7.14		5.00		6.07		4.25		13.51			4.71	
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CALCULATED BY L.R.d. CHECKED BY A.G.S.

FIGURE 13

by the latitude and departure method with the assistance of Latitude and Departure Tables which have been prepared for this purpose and which offer a quick means of tabulating the survey records and plotting the survey map. Latitude L (Figure 12) is the distance north or south from the vertical through the mouth of the well at the derrick floor, or from the vertical through the preceding point, while Departure D (Figure 12) is the distance east or west from the vertical through the mouth of the bore hole or from the vertical through the preceding point. Both are trigonometric functions of the course length CL and the angle of bearing A, the values of which are contained in the Latitude and Departure Tables. The true vertical depth VD is obtained by multiplying the course length CL by the cosine of the angle of inclination I. The values of the correct vertical depth for the course length of 100 feet for angles of inclination ranging from 0 to 55° are also contained in the Latitude and Departure Tables.

The tabulating of the survey records is done in a convenient manner by using a printed tabulation sheet (Figure 13). The plotting of the survey map is done usually in three projections, namely, in a horizontal, in a vertical north-south, and in a vertical east-west plane. The horizontal projection is the most important, as it presents best the course of the well and indicates the course at each depth (Figure 14). It presents the course of a hole as it would look if seen from the sky directly above the center of the derrick. Projections in the east-west or north-south plane are frequently not required. Instead, a table setting forth the inclinations of the hole at each record point is added to the horizontal projection. The survey map together with the film, the field data sheets, and the tabulation sheets are given to the customer who ordered the survey. Confidential surveys can be made by having customer orient the gyroscopic indicator in a direction other than north-south, but only known to him.

During the last five years the drilling of deep holes beyond the 10,000-foot depth has introduced some additional problems to the development of surveying instruments, namely, high temperatures and high pressures, which problems have been successfully worked out in connection with the gyroscopic well surveying instrument. Temperatures from 225 to 260° have been encountered in these deeper holes; also hydrostatic pressures ranging from 5000 to 7500 pounds per square inch. A specially prepared film is used under these conditions so as to avoid burning out of the film, and the hole should be circulated for several hours before the survey is made.

Present day conditions, as well as the great cost of this intrinsic and highly scientifically designed instrument make it necessary to exercise the greatest care in the operation while in the hole.

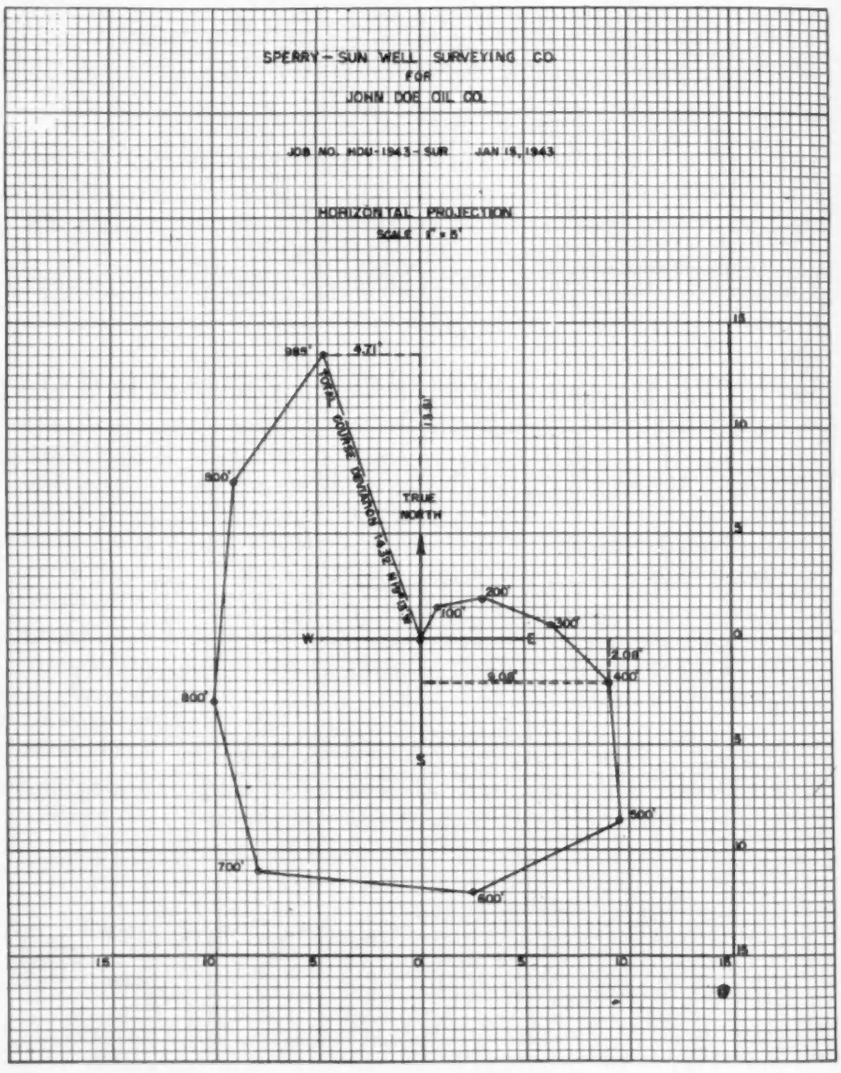
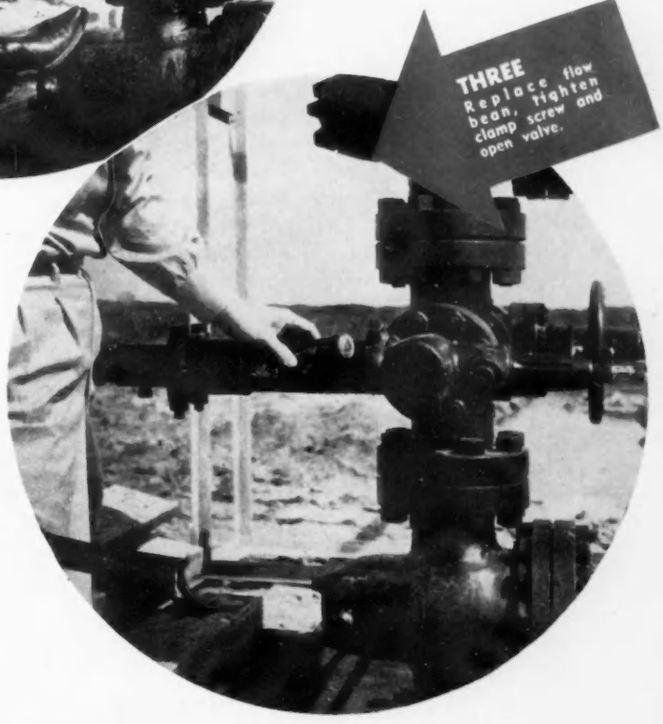
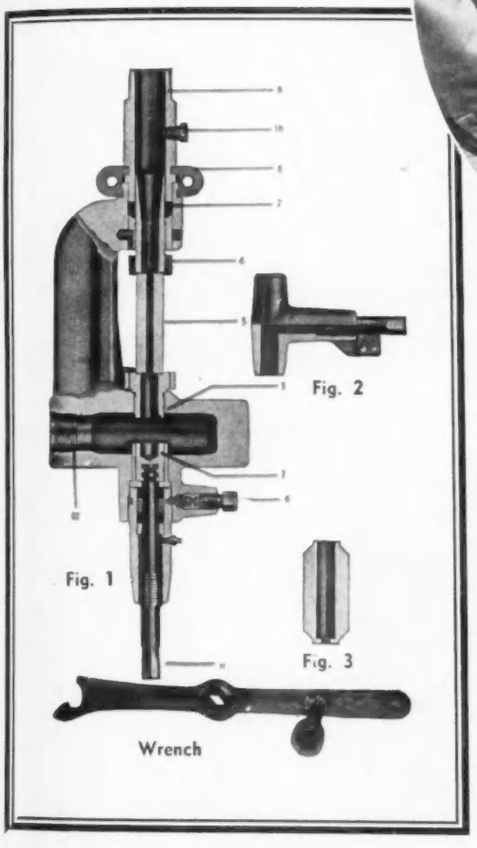


FIGURE 14

CAMERON FLOW WINGS

Make Choke Changing FASTER • EASIER • SAFER





***Left:* Cross-section view of a Cameron Type "D" Flow Wing.**

Reference to figures: 1. Valve Stem; 2. Valve; 3. Valve Seat; 4. Clamp Screw; 5. Flow Bean; 6. Packing Feed Screw; 7. Clamp Screw Packing; 8. Two-bolt Union; 9. Outlet Connection; 10. Bleeder Connection; 12. Inlet Connection.

Cameron Flow Wings give new meaning to quick-change chokes. Note in the sequence of operations illustrated above that there are no choke nipples or choke bodies with threaded or flanged connections to contend with. Instead, the choke, or flow bean, is out in the open and is released by simply making two turns on a clamp screw. Furthermore, the choke may be either positive or adjustable, (See Figure 2), both of which are interchangeable in the Flow Wing and can be replaced in two or three minutes. The built-in valve section of the Flow Wing provides a quick and easily operated shut-off. Consequently, it is never necessary to close the master valve (or the conventional wing valve if the tree is so equipped) to change chokes.

Everything needed to control the well flow is combined in this single compact unit. In addition to the valve and choke, an efficient 2-bolt union on the downstream end of the unit obviates the need for an additional union in the flow line. A bleeder plug is provided to release trapped pressure in the flow line and thus facilitate changing flow beans.

While the compact design of the Cameron Flow Wing requires considerably less steel than conventional assembled flow wings, it is stronger structurally because there are fewer threaded and flanged connections between its component parts. All parts of the assembly may be replaced in the field in a few minutes and at low cost without removing the unit from the well.

CAMERON IRON WORKS, INC.

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Facilities Being Provided to Get West Texas Crude

New lines being built and stepping up runs through existing facilities to provide outlet for about 500,000 barrels daily

By DON L. CARROLL, Staff Writer

ARRANGEMENTS have been virtually completed for providing facilities to handle larger volumes of crude oil from fields in West Texas, which have been inadequately served by pipe-line and tank-car outlets, in spite of the fact that the area is probably the only one in the country that can be counted on for greater production in really important amounts.

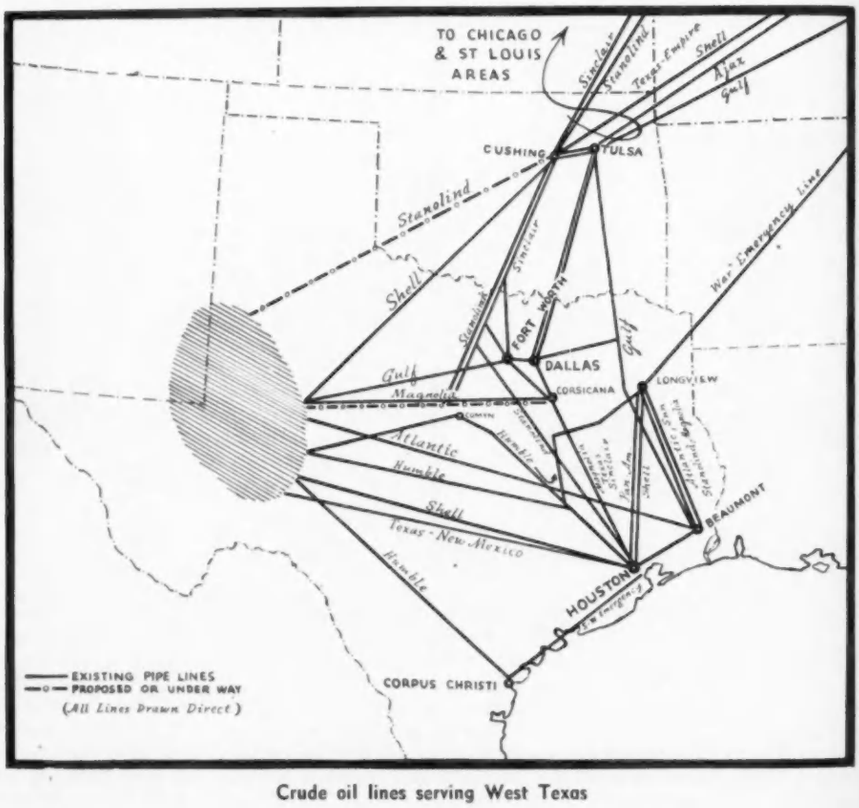
During the first week in September, Humble Pipe Line Company's combination 10- and 12-inch line from the Yates-Kemper area to Ingleside, near Corpus Christi, was boosted to full capacity for the first time, and is now handling close to 60,000 barrels daily of sour crude oil from the Permian Basin. This company's gathering lines extend northward and westward through most of the West Texas-New Mexico producing region. Surplus oil thus piped to the Corpus Christi area is being sent on to Houston and Beaumont, whence it is fed via existing lines up to Longview and mixed into the Big-Inch flow. Approximately 55,000 barrels daily are handled in this way. Completion of reconditioning work now underway on Southwest Emergency Pipe Line's combination 14 and 16-inch artery from Corpus Christi to Houston will remove the necessity of handling any of the oil by boat. This line is scheduled to be put into service by October 15.

Magnolia Pipe Line Company has secured WPB approval for constructing a combination 8- and 12-inch line from Midland and the Seminole area to Corsicana, with a rated capacity of 42,000 barrels daily. Work on the main trunk line will begin about November 15, upon delivery of new pipe required. Gathering lines into the fields, from Midland, are supposedly already under construction, second-hand pipe being used. The new line will parallel the company's existing line to Corsicana.

Stanolind Pipe Line Company has secured PAW approval for putting in a 16-inch line from the Slaughter field to the Drumright-Cushing terminal district in Oklahoma. This line is scheduled for completion in February, with a planned initial flow of 54,000 barrels daily. Additional pumping equipment may be installed along this line to increase its capacity, if this is found to be necessary. This eventuality likely will depend upon requirements of Mid-Western refineries next year, since it is expected that most of the cargo of the new line will go on to the Chicago area from Cushing. Lines emanating from Cushing and Tulsa also lead to the St. Louis area, and some of the additional West Texas oil may be run to refineries there. Maximum capacity of the proposed Stanolind line is estimated at more than 100,000 barrels.

The increased flow from West Texas required reversal of some lines between the Coast and East Texas, for delivery to the Big-Inch line. These reversed lines include the Sun Pipeline Company line, now carrying 40,000 barrels of the West Texas crude daily from Beaumont to Longview; the Atlantic Pipe Line Company line, carrying 35,000 barrels between the same points; and the Pan American Pipe Line Company line, from Houston to Longview, handling 50,000 barrels daily, including 20,000 barrels from West Texas.

An accompanying map shows the direct routes of the major pipe lines from West Texas, existing and planned, as



Crude oil lines serving West Texas

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Drop Forgings

TO MARK PROGRESS

- Ladish facilities assure controlled quality forgings

ARMY E NAVY

LADISH DROP FORGE CO.

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No more derrick floor slime

STRIPS PIPE CLEAN

ELIMINATES MESS

NO WASH WATER NEEDED

PREVENTS MUD DILUTION

SAVES WATER

A clean derrick floor encourages better, more efficient work by the drilling crew. No longer is there an excuse for slimey, slippery floors, caked with mud. The Patterson - Ballagh Pipe Wiper eliminates the mess. It strips the pipe before it comes up. The mud is kept in the well . . . not splattered all over the derrick tools. The pipe is stacked clean. The elevators can be hooked with greater safety. You'll never be without this effective Wiper, once you have used it. See Composite Catalog.

PATTERSON-BALLAGH PIPE WIPER

PATTERSON-BALLAGH CORPORATION—Los Angeles, Houston, New York City

OIL AND GAS LEASE

U. S. DEPARTMENT OF AGRICULTURE, Farm Security Administration, Dallas, Texas: Sealed bids, in triplicate, will be received until Two O'clock P.M., (cwt) Friday, October 22, 1943, and then publicly opened, offering bonus for operating rights in connection with oil and gas leases on lands in the Texas Farm Tenant Security Project, consisting of 214.453 acres, located approximately 6 miles Southeast from the town of Pilot Point, Denton County, Texas, and being a part of the Isaac Walters Survey. Award of lease will be made to bidder who can show sufficient experience and financial resources and prove citizenship. Interested parties may obtain bid documents, lease forms and operating regulations from the office of the Regional Business Manager, Farm Security Administration, Parry Avenue at Commerce, Dallas, Texas.

well as routes and ownerships of more distant lines that can be expected to play important roles in carrying the increased supplies to refining centers. Altogether, it is expected that by this time next year the expansion and shuffling of pipe lines will virtually double the oil moved from the Permian Basin, to a total of something like 500,000 barrels per day, as compared to less than 260,000 barrels daily in August this year.

An indication of the trend during coming months is supplied by noting the effect of making full use of the Humble Pipe Line Company line after September 1. West Texas production averaged about 258,000 barrels daily in August and 330,000 barrels per day in September.

When completed, the new pipe lines being built to handle West Texas crude exclusively will total approximately 950 miles. The rejuvenated utilization of the Humble Pipe Line Company line adds another 300 miles to this total. Oil taken out through the Stanolind Pipe Line Company line will be fed to District 2 refineries, while that carried by the Magnolia Pipe Line Company line will be mostly refined in Texas, thus releasing that much more crude from Gulf Coast and East Texas fields for shipment eastward in the Big-Inch line.

By mid-1944 the schedule calls for an increase of 240,000 barrels daily from West Texas. Any deficiency in delivering that amount through the new lines will be made up by rail shipments.

The new line construction program is being expedited in every way possible, as has been the case with all war emergency pipe-line projects. PAW and WPB have cooperated closely in all phases of the program. The operating companies and supply firms have been given the green light to put in the lines ahead of schedule..

Commenting on the importance of the time element, Petroleum Administrator Ickes recently said, "We have already saved about 30 precious days over the original construction schedule (for the Magnolia Pipe Line Company line) and 30 days is an important time in the development of new outlets for the last major field in which we know that we can open the wells for freer production without permanently endangering our basic petroleum reserves." And according to Assistant Administrator Davies, the Stanolind Pipe Line Company line, scheduled for completion in February, is well advanced from the standpoint of necessary preconstruction work. Aerial surveys have been completed, much right-of-way secured, orders have been placed for pumps and motors, and storage tanks are being erected at the Slaughter terminal.

3660 shots

IN 66½ HRS. ELAPSED TIME

Another world's record was established when McCullough gun perforating crews, using double 30-shot guns, perforated a San Joaquin Valley well with 3660 shots in a total elapsed time of 66½ hours. This included the time spent in rigging up to do the job and in removing the equipment when it was finished.

The dependability of McCullough men combined with McCullough methods produced this time-saving operation.

San Joaquin Valley Well GUN PERFORATED In Record Time

For Accurate Location and Deep Penetration, Use the

Hard Shooting-exact S-P-A-C-I-N-G

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GUN PERFORATOR

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VICTORIA, TEXAS	TYLER, TEXAS	LAKE CHARLES, LA.	CASPER, WYOMING	AVENAL, CALIF.

PRACTICAL OPERATING *Hints* FOR THE DRILLING RIG

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. *PIPE MAINTENANCE*

Concrete Footing Snubs Pump Pound

Placing a strip of discarded flat belting or even a doubled ply of heavy building paper under the pipe prevents its chafing against or being deformed by minor roughnesses in the upper surface of the anchor block.

Provision of heavy blocks of concrete at points of mud main direction change with bolted pads to restrain shifting eliminate vibration damage to fittings and possible disruption of fluid delivery.

TO prevent creep of the line from slush pumps to standpipe and to snub the vibration which is apt to center at abrupt changes in direction, one contractor has a heavy concrete block set into the ground at each turn, the block carrying two 1-inch bolts embedded in it, spaced far enough apart that the turn of the pipe may be placed between them. A pipe nipple, drilled to fit over the bolts, serves as clamping member and has spring or "give" enough so that the mud line is not distorted when the retaining nuts are turned down tightly.

2. *BOILER OPERATION*

Closely Ranked Units Better Regulation

REGULATORS for blower or forced-draft operation usually are set some distance from the boilers, as in the shelter of the fireman's shed, and sometimes are sluggish in responding to the boiler demands, due to the amount of small diameter actuating line connecting the unit to the boiler.

Setting the draft regulation equipment directly under the shell of one of the boilers provides shelter, shortens the tie-in to mains, and protects the units agains possible damage through collision with moving materials.

One contractor safeguards the unit against accidental damage, and at the same time secures minimum pipe exposure, by setting the spring-loaded diaphragm pressure regulator and its connected piping on a light rack or support, installing the unit under the shell of the boiler, just ahead of the bend in the blow-down line which carries this unit aside and thus leaves unoccupied the space below the shell.

Once set to conform with boiler operating conditions at a certain site, there is little reason for the fireman to visit the blower control frequently, though the usual boiler setting affords vertical clearance enough for servicing or regulation of the unit in the space between the barrel of the boiler shell and the planking on which the boiler skids rest.

Where the boiler is skid-mounted, and skid moves with the steam unit, the regulator assembly is permanently attached to the plating of the skid base, and this need be cut loosely only from the steam header when tearing down for a rig shift.

Quick servicing of the regulator valves is obtained by the use of hook-bolts for attaching lines to skid base, so that the unit may be freed for lifting out or replacing without the need for more than loosening the nuts on the bolts, while at the same time flexibility is maintained for expansion relief.

3. *MUD HANDLING*

Weir Gates Speed Stream Diversion

UNDER certain conditions of drilling, it frequently becomes necessary to divert the mud stream from the pits to prevent contamination of the stock, or to bypass the shale shaker to deliver the returns to a separate pit. By equipping the flumes with a set of three Weir gates, one on the direct line to the shaker, a second in the branch tying in with the pits, and a third in the branch wall to permit wasting the flow to a ditch, it is possible for one man to manipulate the mud streams without loss of time, and to make a switch without wastage.

Since closed gates tend to plaster up

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Sure, you remember Bill. He ran a rig for [redacted] up in Seminole. Always had definite ideas about things in general and knew his job, too. Remember how he had all of the boys putting a good portion of their pay in War Bonds?

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Quick-opening gates in the flumes provide for segregation of oil- or gas-laden mud, and enable specially compounded muds to be stored when formation change no longer requires their circulation down the hole.

with the mud, and to become tightly seated, provision of a handle, turned edge or lifting loop on top of the gates simplifies the job of opening them.

The gates may be held in the open position by widening the groove in which they operate at a point above the level of the full flow of the mud stream, and setting the gate over on the ledge thus formed.

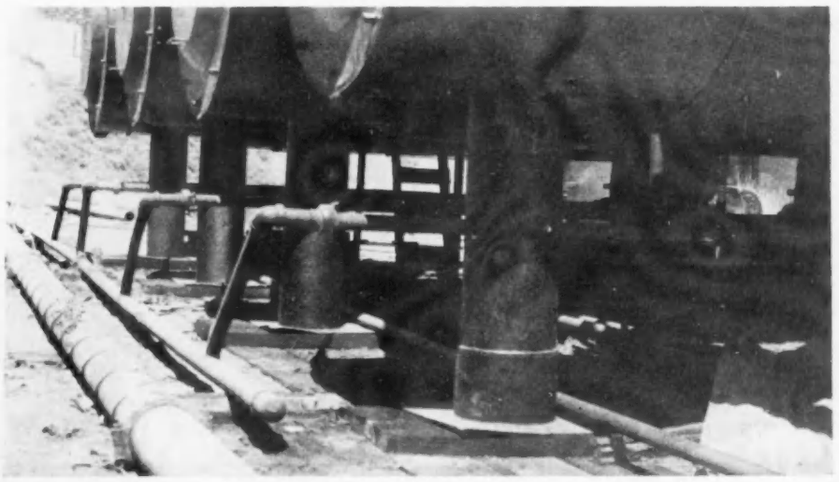
4. RIGGING UP

Blow-down Header Averts Line Stresses

A HEADER for the blow-down lines from a battery of boilers is placed beyond the smoke-box line of the units, and the lines from the various boilers brought into it at an angle of about 60 degrees, the leads being welded into the larger header. This angle gives the steam and water a scouring effect as it strikes the big line, tending to loosen and carry out any sludge and scale which settled out from a previous blow-down.

Setting the lines in at an angle affords slack or leeway for the pipe to shift under the influence of the temperature extremes to which it is subject, without stressing either the junction weld or the fitting at the top of the drop-leg.

The separate blow-down lines from the valve set close against the firebox are carried on this installation through holes drilled or burned through the large diameter pipe nipples used to support the boiler smoke-box ends, thus anchoring the line so that any expansion shift is curbed before it can reach the valve or connection to the boiler shell itself.



Tying the individual boiler leads into one header, with the taps made at angle of 60 degrees to avoid expansion overloading, enables each unit to scour the line and thus to keep the manifold clear of sludge or scale.

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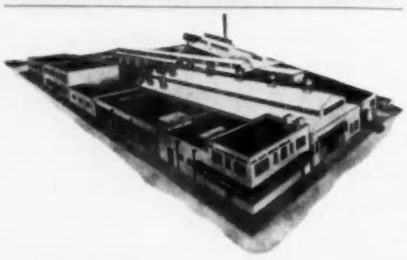

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Much Talk But Little Real Action On Oil Problems

Congress Appears Determined to Force Price Increase

Middle East Oil to Be Used More in War, Says President

PIWC Studies Fundamental Problems of Industry

By B. F. LINZ
Washington Correspondent

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OIL matters were the subject of discussion all over the National Capital last week, but while there was a maximum of talk there was a minimum of immediate action, although some issues were clarified and there were hints of action to come.

At the White House, President Roosevelt explained why the United States has had to bear the brunt of the burden of supplying the United Nations with oil, and disclosed that, now the Mediterranean has become "our" sea, steps are being taken to draw on Middle-East supplies more heavily.

At the Capitol, the oil group of the Senate Naval Affairs Committee held another hearing at which Texas Railroad Commissioner Beauford H. Jester and independent Texas operators testified, and followed up with a report which recommended centralization of government oil control in one agency; a Senate committee also reported on the oil situation, making the same recommendation, and another committee favorably reported a bill authorizing the construction of experimental facilities for production of gasoline from coal.

At the Interior Department, PIWC held its monthly meeting with discussions of all of the current industry problems, with emphasis upon the sour-crude situation and materials supply for both production and refining.

Both Capitol and PIWC activities were tinctured with price discussions, and congressmen from the producing states banded together to force Stabilization Director Fred M. Vinson to authorize a crude-price increase or jam price-increase legislation through Congress; so far as could be seen, the latter had a better chance of success than the former in view of the now-evident determination of administration leaders to keep oil prices down, apparently with the hope that imports would increase sufficiently to keep supply up to needed levels.

Congressional delegations from the producing states met on call of Representative Disney of Oklahoma October 6 for a further discussion of price strategy, appointed a committee of four to call on Stabilization Director Fred M. Vinson and adopted a resolution calling on the House Banking and Currency Committee to report out price-increase legislation, threatening to circulate a petition for discharge of the committee if this is not done promptly.

Congressional Pressure For Higher Crude Prices Reaches New Peak

Pressure for an increase in crude prices intensified last week as industry resentment increased over the failure of the Administration to offer a satisfactory solution for the problem of increasing production.

As the petroleum subcommittee of the House Naval Affairs Committee reopened its hearings to receive the views of Texas officials and independent producers, a group of some 40 independents affiliated with the Independent Petroleum Association of America, descended upon Washington with the avowed intention of staying "until this situation is corrected."

Emphasizing that immediate action must be taken to deal with the increasing shortage of oil, Chairman Beauford H. Jester of the Texas Railroad Commission told the Naval Affairs subcommittee October 4 that the only remedy is the discovery of more oil reserves, to achieve which there must be an "adequate" increase in the price of crude.

"Analysis of the immediate supply-and-demand situation makes it evident that the petroleum industry is not only failing to find new oil in sufficient quantities to offset heavy withdrawals from underground reserves, but is actually using its available supplies 22 percent faster than the efficient rate of utilization realized under peacetime conditions," he said. "In other words, for every 100,000,000 barrels of oil needed in 1941, 122,000,000 barrels are now needed to produce relatively the same quantity of products, without considering additional demands being created by our prosecution of the war."

Texas has long been cognizant that the country was heading toward a serious oil shortage, Jester said, and in August the railroad commission held hearings on all producing areas in the state to secure testimony from operators and engineers as to additional capacity of the several fields. Those hearings, he said, developed that Texas can produce without waste 175,170 barrels daily more than the 1,999,000 barrels certified for October by PAW.

"It could step up its production to an additional 50,485 barrels per day as a maximum availability, or 2,225,655 barrels per day, for six months, and crowd the safety limit of production," he added, but even at that rate the forecasted need for 5,000,000 barrels of crude daily in the last quarter of 1944 could not be met.

"It is alarming to note that after every available barrel of oil is produced from the now-known fields in the United States, including the 2,225,655 barrels that could come from Texas, we will still be short 500,000 barrels per day of the anticipated 1944 peak demand," he commented.

"Based on these estimates, we are faced with a very real shortage of crude oil in the United States."

Jester went back to the last war to illustrate the effect of price upon drilling, showing that in 1916, when oil was $1.10 per barrel, the industry drilled 24,619 wells, while in 1920, when the price was $3.07 a barrel, 33,911 wells were drilled. He followed that with figures on activity during the depression, testifying that the number of wells drilled dropped from 21,240 in 1930, when the price was $1.10, to 12,432 the following year, when the price dropped to 65 cents; recovered to 15,040 in 1932 with an 87-cent price but dropped back to 12,312 the next year at 67 cents, while in 1934 a $1 price resulted in the drilling of 18,197 wells.

"It is difficult to relate the prices of crude oil over the past few years with drilling activities in the United States for the reason that new oil fields are becoming harder to find and the cost of exploration is materially greater than it was in the first World War period and even for the period prior to the present World War," he explained. "It must also be remembered that the oil demand in World War II is three and one half times greater than in World War I.

One Producer in Ten

"A recent study of wildcat drilling statistics shows that 9 out of every 10 holes drilled are dry, and that the average cost per wildcat operation, including lease and overhead costs, exceeds $50,000. This means that the oil industry has to spend at least a half million dollars to find one producing oil well.

"These facts answer and refute Mr. Sumner Pike's statement that the amount of wildcatting going on indicates no need for a price increase in oil.

"When the Office of Price Administration denies an increase in the price of oil because of its policy of 'holding the line' on prices," Jester concluded, "it overlooks the fact that the price of oil has not been allowed to come up to the

line of prices of food, farm products, raw materials, labor and operating costs. Oil ought to be allowed to come up to that line."

Independent oil companies are able to remain in business only by drawing on and depleting their reserves, which will be exhausted in a comparatively short time if price relief is not provided, it was declared by J. E. Brantley, Dallas drilling contractor and producer.

Brantley declared that unless a price increase is granted thousands of stripper wells will have to shut down, because they cannot be produced at the present price when daily pumping capacity drops below 1.8 barrels daily.

He told the subcommittee that he is a geologist of long experience, now engaged in the well-contracting and oil-producing business. His company also is acting as petroleum adviser to the government of Brazil and is directing the work of developing the oil industry of that country.

Civilian Shortage

Explaining that he would not add to the store of statistical information, J. C. Hunter of Abilene discussed the highlights of the situation on the basis of his 20 years experience as an independent wildcatter and producer, 4 years service as president of the Mid-Continent Oil & Gas Association, 3 years service as Texas representative on the Interstate Oil Compact Commission, and knowledge gained through membership on PIWC.

"There is not now any lack of ability of supply the strictly military requirements nor any threat of such inability in the near future," he said, "but supplying these 'must' and rapidly expanding demands of our own country and our allies, augmented by the rapidly declining rate of discovery and restricted development activities, has brought about an acute inability to supply the civilian needs of our citizens, which is reflected in the present rigid rationing restrictions. These restrictions unquestionably hamper the full effectiveness of our war effort and harmfully disrupt necessary and important civilian activities. The outlook definitely is that the situation will grow worse before it gets better.

"This unfortunate oil condition has shocked and irritated the nation and it has produced a bitter and disappointing awakening in the oil industry."

Hunter recalled that during the decade preceding the war, oil discoveries on a vast scale and the competition of the marketing companies, with its accompanying pressure upon prices, operated to the great disadvantage of the producer, particularly the independent who had no choice but to sell at the price offered. That situation, he said, was a result of failure to give proper consideration to the necessity of making the cost of finding and producing a barrel of oil the dominant factor in establishing its sale value, and led naturally to a decline in wildcat drilling.

Under normal peacetime operations the situation might have adjusted itself through the operation of the law of supply and demand, but it suddenly became much more difficult and expensive to find oil and on the heels of that the United States entered the war and the price of oil was frozen at about 60 percent of parity.

"In the midst of war the oil industry was caught in a jam," Hunter pointed out. "Its house was on fire in many places—it was no longer a free agent to take appropriate steps to put out the blaze. It was compelled to operate under a maze of government rules and regulations. Its first duty was to supply the immediate and ever expanding military requirements of the war. It was suddenly deprived, through the submarine activities and other phases of war, of 98 percent of its transportation facilities for supplying oil to the East Coast where a very large portion of its products are consumed. It was unable to get materials promptly to construct pipe lines, drill wells and build or reconstruct refineries to supply the special products required for war. It soon became acutely short of manpower. It had to change its refinery processes. Its costs have been constantly rising in every phase of its activity, and particularly in the producing branch of the business, and all this time the price of crude has been frozen at the low level existing before the war, about 60 percent of parity."

Hunter pointed out that the transportation problem has been licked, but this will be to no avail if the supply of oil and products cannot be maintained. PAW, PIWC, the state regulatory agencies, the compact commission and the industry and its trade associations have all attacked these handicaps and progress has been made but "though much effort has been put forth no worthwhile results have been obtained in the field of price.

"The suggestion has been made that the government subsidize the search for oil," he said. "This subject has been given serious and careful study by the petroleum industry. It is on record in vigorous expression that the subsidy is not practical and will not work in the hazardous and complicated problem of wildcatting for oil. Visionary theories are not a practical substitute for vision and action. The independent producers who have discovered most of our oil cry out for vision and action in high places in the price-control field.

Price Raise Practical Solution

"Based upon the full extent of my knowledge and information, I express the firm belief that it is the considered judgment and unanimous opinion of the entire industry that the only practical solution is a prompt, substantial, and adequate increase in the price of crude oil, with simultaneous appropriate adjustment in product prices."

Oil price became a live subject on the other side of the Capitol also, where Senator Thomas of Oklahoma introduced a bill to fix standards for establishing ceilings on oil and products.

The bill provided that, in establishing maximum prices for crude, "consideration shall be given to the necessity for finding, developing, and producing additional crude petroleum, and to parity as indicated by the relationship between the index of crude petroleum and the index of all commodities as reported by the United States Department of Labor, Bureau of Labor Statistics, under the title of 'Average Wholesale Prices and Index Numbers,' in its wholesale commodity-price index, based on the year 1926; provided, however, that such ceilings shall not be fixed or maintained at less than 35 cents per barrel above the present respective price ceilings for crude petroleum of any and all gravities and qualities throughout the United States wherever situated."

The measure also provided that, concurrently with the establishing of maximum crude prices under this formula, maximum prices for petroleum products shall be increased sufficiently to compensate for additional prices paid for crude.

Two Congressional Committees Critical Of "Confusion" in Administration of Oil

Centralization of government oil control was recommended October 5 in reports of two Congressional committees which have been engaged in studies of the petroleum situation.

Both the Senate committee which has been probing the Mid-West fuel situation and the Rivers subcommittee of the House Naval Affairs Committee urged unification of the several agencies now interested in the subject, the former asserting the need for such action to eliminate existing "confusion and inefficient handling" of oil problems.

Oil Supply Acute

The Naval Affairs subcommittee warned that the gasoline and fuel oil shortage in the East may necessitate further curtailment of consumption and asserted that the situation this year will be little, if any, better than last winter.

There is an "almost critical" shortage of oil and products, it was declared, and "if this condition continues, America will soon become a dependent nation as far as petroleum is concerned."

The subcommittee, highly critical of administration of the petroleum supply, urged that the price of both crude and products be raised to meet the increased cost of finding, developing and producing oil.

"Testimony presented shows beyond question an almost critical shortage of petroleum and its products," it reported. "It is the duty of Congress to provide every incentive which will stimulate new discoveries of oil to the point where our reserves are again adequate for future needs."

The subcommittee went into every phase of the industry's problem and emphasized the need for prompt action to surmount the handicaps under which it now operates.

It recommended that the War Manpower Commission review its regula-

tions and provide draft deferment for skilled personnel engaged in exploration, development and production.

At the same time, it urged the War Production Board to make available to the industry increased amounts of the materials needed to find, produce and transport oil, and demanded that the regulations granting priorities for materials be simplified to permit wildcatting and production to go forward with a minimum of governmental red tape and delay.

The report also recommended construction as soon as possible of a crude pipe line from Texas to the Chesapeake Bay area to relieve the East Coast shortage and ease the strain on the railroads.

Considerable attention was paid to the complaints of state officials that they were being shut out by PAW, and it was recommended that the state oil regulatory bodies be given a free hand in determining the rate at which oil is to be produced in each state without federal interference.

With a view to bringing all controls over oil under one head, the subcommittee suggested that the House Naval Affairs, Military Affairs and Interstate Commerce Committees develop legislation to place all oil administration in one agency, which would take over the oil functions of PAW, OPA, Interior Department, WPB, ODT and Maritime Commission.

Pennsylvania Field Crude Increased 20 Cents

An increase of 20 cents per barrel in the premium price of Franklin heavy crude produced in Venango County, Pennsylvania, was put into effect by OPA October 9, making a ceiling price of $3.63 per barrel.

The action was based upon an "extensive investigation" which OPA said it had made, which showed that under the "present premium price of 50 cents a barrel the producers are operating at a loss and that continued production of the oil, which has a very high aviation lubricating oil content, is essential to the war effort.

Retroactive to May 17

While the new order became effective October 9, the increased premium price was made retroactive to May 17, last, the date on which the refiner purchaser of the oil filed a petition for an increase, which he agreed to absorb. Since that time, it was said, another refinery has become a purchaser and also has agreed to absorb the boost.

OPA pointed out that the amendment expressly incorporates in the petroleum regulation for the first time its policy in permitting post-delivery adjustments of prices in cases where the parties have agreed to make the price apply on and after the date of the filing of the petition and have specifically requested the OPA to take such action.

"By adding an adjustable pricing provision to the regulation," it was explained, "the amendment makes this policy clear to the industry. The buyer and seller may agree that prices for deliveries made during the pendency of the petition shall be determined in accordance with any ruling subsequently made by the OPA on the petition."

War Agencies Working to Increase Oil Movement from Middle-East Sources

A strong defense of United Nations' oil policy was entered by President Roosevelt October 5, going into detail regarding the use of ex-United States oil at his semi-weekly press conference.

Control of the Mediterranean Sea, the President said, has made possible a rearrangement of petroleum supply routes to enable the British to contribute a fairer and larger share from their supplies.

President Roosevelt declared that everything possible is being done to reduce the military drain on our own reserves, but pointed out that the limiting factor in this effort is the need to use the limited supply of tankers on the shortest possible routes.

However, he added, the War Mobilization Committee some time ago issued a directive to all interested agencies to increase to the fullest extent possible the use of the production and refining capacity in the Middle East and Caribbean areas.

To Increase Near East

Arrangements to increase the movement of gasoline and distillate fuels from Abadan, Iran, on the Persian Gulf, to points previously supplied from this side of the Atlantic are now being made, and substantial shipments of crude are being imported along the East Coast from the Caribbean, the President said.

Roosevelt's lengthy explanation of the situation was an answer to criticisms that the British were withholding oil from resources controlled by them so as to conserve their reserves for post-war trade. The actual facts, he said, do not support such an impression.

On the contrary, he went on, the British have been anxious to increase the delivery of oil from their resources for all phases of the war effort, ships' bunkers and civilian consumption. Tanker tonnage until recently was the major factor limiting the provision of adequate supplies for these purposes.

In support of his statement regarding the necessity of using distance as the gauge, the President pointed out that from Abadan to Noumea, New Caledonia, a 9800-mile trip is involved, while the same latter point is only 5700 miles from California; similarly, the haul from United States Gulf and Caribbean ports to the United Kingdom is but 4600 miles compared with 11,000 miles from Abadan around the Cape of Good Hope.

Under these circumstances, he explained, had the British been permitted to increase supplies from Abadan, much of our scant supply of tankers would have been wasted and military and naval operations would have had to be curtailed.

However, when the Mediterranean control passed into our hands and it became apparent that tanker tonnage would increase in relation to demand, the War Shipping Administration, British Ministry of Transport, PAW and other agencies began to arrange for a reallocation of tanker tonnage so as to ease the disproportionate drain on Western Hemisphere reserves and at the same time effect a redistribution of the supply between American and British sources that will require of the latter a fairer and larger share.

The same situation was touched upon earlier in the day by Davies who, in an interview, made it clear that increased use of oil from other parts of the world is the only thing that will stave off much tighter rationing in this country.

Davies, too, defended the failure of the British to supply more oil from resources under their control—criticized by a group of Senators who recently returned from a 40,000-mile tour of the battlefronts—and emphasized that the whole problem was one of distance and transportation facilities.

At the same time, Davies pointed out, the situation has not been as one-sided as offhand criticism might indicate.

"Contrary to the general impression," he was quoted as saying, "much of the oil in South America is British-owned, and while bearing that in mind we ought to remember that on the other side of the picture Americans have as big a stake in the oil deposits of the Eastern Hemisphere.

"This, too, is contrary to the erroneous idea people have that oil reserves in the Persian Gulf area are entirely in British hands. American oil holdings in the Middle East are very large, and are almost comparable with the British holdings in the same area."

President's Statement Challenged

The President's statement that increased oil would be supplied from British Middle East sources was challenged by Senator Ralph O. Brewster of Maine, one of five senators who recently returned from a 40,000-mile tour of the battle fronts.

Speaking on a radio program October 6 and in a closed session of the Senate the following day, Brewster declared that American companies are increasing their production in the Persian Gulf while British refineries there are operating far below capacity.

In view of the President's statement, he said over the radio, "one is still puzzled to find proposals being seriously considered to increase the output of petroleum products from the reserves in the Persian Gulf controlled by American companies, while at the time of our visit the output of the British refineries was far below capacity. An increase of 40 percent in refined output and definite increase in crude output was possible without increase of facilities.

"The patriotic cooperation of the American companies in tapping their reserves in this area is very gratifying. But in view of the tremendous contribution of America to the war effort thus far in the petroleum field as a result of the strategic location of our reserves, it seems most unfortunate that in the Persian Gulf again American reserves must be further tapped to supply the current need instead of the readily available British sources."

Problems of Exploration, Production And Refining Studied by PIWC

Problems of exploration, production, price and supply bulked large in the discussions of the November meeting of the Petroleum Industry War Council, at which its committee on petroleum economics focussed attention on West Texas sour crudes, now relied upon to meet much of the stress occasioned by capacity production in other areas under increasing military demand.

Meeting at the moment when broad problems such as the Middle East oil situation, price and manpower were subjects of consideration in administration and congressional circles, the council's consideration of these matters was most timely and may have a definite influence in decisions on questions which long have been troubling the industry.

As the Senate voted to stiffen the qualifications for occupational deferments from military service, the council adopted a resolution asking PAW to make vigorous representations to the War Manpower Commission to add derrickmen, firemen, floormen and oil-well pumpers to the critical list of the selective service.

Discussion of the labor situation disclosed that over 50 percent of the producers now are faced with an acute shortage of manpower, but the establishment of minimum wages for drilling crews throughout the greater part of the producing area is expected to improve the situation by eliminating the competitive transfer of manpower which has depleted forces heretofore.

A report on the situation by Dr. Frederick H. Harbison, PAW labor counseler, warned the council that the drafting of fathers, now beginning, will have a serious impact on producers, it having been found that approximately 50 percent of the oil pumpers still in the industry are fathers, between the ages of 18 and 38, and subject to draft.

Suggest Price Raise Formula

A detailed exposition of the economic factors involved in an increase in the general price of crude was submitted by the committee on cost and price adjustment in a report warning that, in view of the war situation, "the industry would be derelict in its duty if it did not insist upon adequate prices for crude oil and its products."

The committee tacitly charged OPA with attempting to perpetuate the economics of scarcity used by the administration a decade ago through its rigid price policy which makes no provision for stimulating production of scarce commodities and seriously hampers the output of highly essential goods where cost of production has increased.

"The petroleum industry is straining at the traces," it said, "to meet production demands in a situation where costs are higher and where crude petroleum at an average price of $1.19 per barrel is 77 percent of the 1916-20 price, 76 percent of the 1921-25 price, 87 percent of the 1926-30 price, and only 7 percent above the 1936-39 prices.

Prices of most other commodities are far above pre-war levels. Under the circumstances, vigorous efforts to secure adequate prices for crude petroleum and its products seem fully justified..

"Recognizing the difficulty of protecting refined products against an increase of crude under the price-controls system the committee offered what it termed as a simple price formula calling for an increase of 0.85 cents per gallon in the price of each product if a 35-cent increase is given on crude to compensate refiners for the added cost of their raw material.

This it was pointed out would retain the present competitive position right through the industry, although it was admitted it would not return to the refiner the full amount of the added cost to which he would be put, because of losses in refinery operations. The crude-price increase of 35 cents per barrel and its equivalent product price increase of 0.85 cents per gallon are indeed nominal increases without serious implication with respect to the maintenance of the administration's anti-inflationary policy, it was declared. Actually the public does not purchase crude oil and therefore is not directly concerned with the 35-cents-per-barrel crude oil increase. It would be concerned of course with the 0.85 cents per gallon increase in products. This is the increase spoken of above as nominal in terms of tax-included products prices which average 11.5 cents per gallon.

"An increase of 0.85 cents per gallon is only 7.4 percent and in terms of the gross national product represents but 0.3 percent. As a matter of the experience of marketers in the petroleum industry, the consuming public by and large would be very willing to pay the higher prices requisite to an assurance of supply of products so necessary to a maintenance of the conveniences and comforts which even in war time America are considered not only desirable but essential."

Other matters brought up before the council included the question of renegotiation of government contracts, a matter of major importance to refiners in which, however, the producers are not involved. The council also received and laid aside for consideration at its November meeting in Chicago a report from a special committee appointed to propose plans for making Army-Navy "E" awards to the oil industry.

Refinery Prospects

The monthly report of the committee on petroleum economics was devoted largely to a discussion of the refinery situation and prospects, in which the council was told that while each district has some reasonably efficient spare capacity above the programmed runs which would be of value if additional crude supplies could be secured, activity by the fourth quarter of 1944 will average in the neighborhood of 95 percent.

Total efficient refining capacity in the United States, operating on a basis of making maximum war products, will increase from about 4,553,500 barrels daily in September, 1943, to 4,701,900 barrels by the end of next year, it was figured. No comparison can be made with peacetime operations, however, it was emphasized, since this capacity would be substantially higher under peacetime conditions where it was not necessary to take so many special steps to maximize the production of war products.

Analysis of the refinery situation showed an excess of refining capacity over programmed runs, not including skimming capacity, of 326,900 barrels at the present time which will increase to 402,900 barrels next quarter as new facilities come into operation and then decline, dropping to 258,900 barrels by the final quarter of 1944.

By districts, the committee calculated the excess capacity for District 1 will remain at 62,000 barrels until the third quarter of next year, when it will drop to 47,000 barrels; in District 2, the present excess of 169,000 barrels will increase to 202,000 barrels next quarter but by the end of 1944 will be down to 110,000 barrels; in District 3, the present excess is 59,900 barrels which will increase to 95,400 barrels through the first and second quarters of next year, dropping to 47,400 barrels in the fourth quarter; District 4 excess of 17,000 barrels will jump to 26,500 barrels next quarter but drop back to 21,500 barrels by the end of the year, and in District 5, the present excess of 19,000 barrels will drop to 17,000 barrels but will thereafter increase to 33,000 barrels in the fourth quarter of 1944.

West Texas Oil

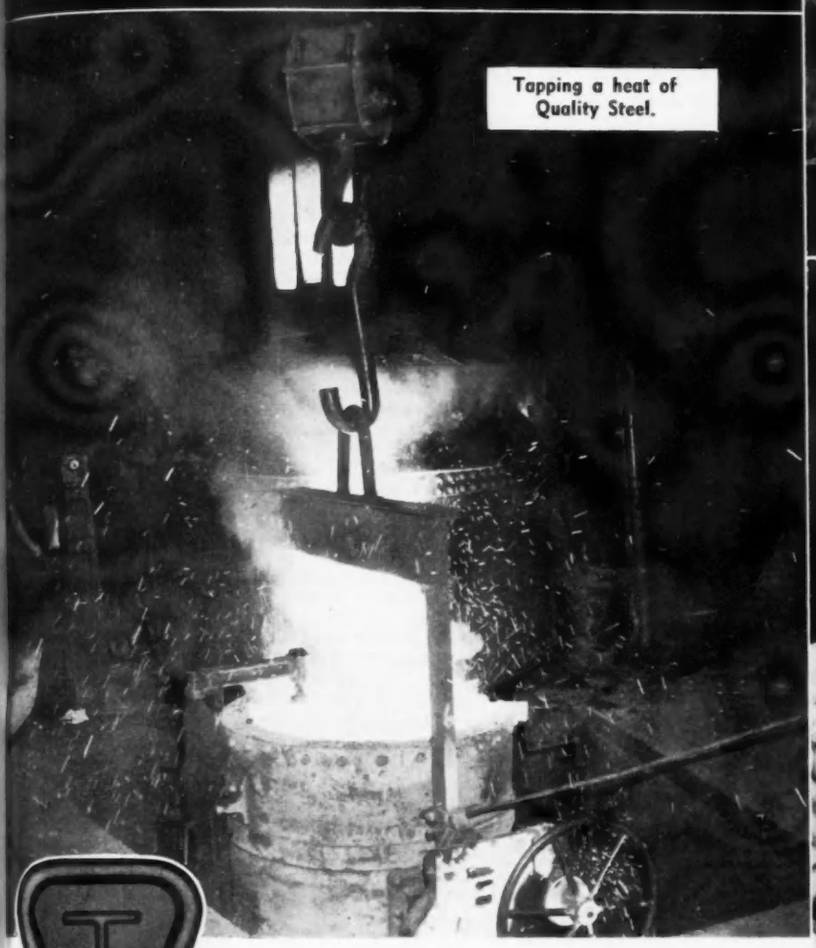
The report stressed the fact that to increase or even maintain present crude runs over the coming year will require the handling of increasing quantities of high-sulphur Permian Basin oil, which represents the only large source of additional oil readily available in this country.

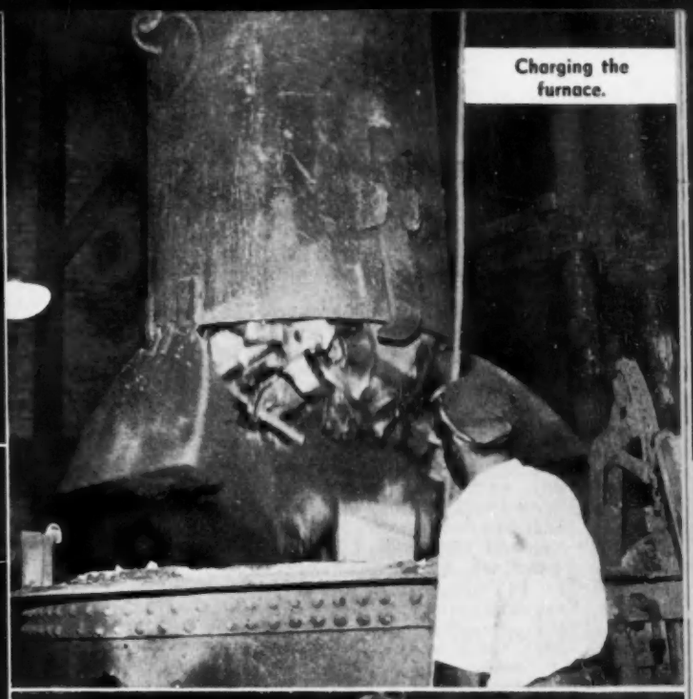
"A survey indicates that the available refining capacity for this type of crude will take care of scheduled runs through the first quarter of 1944," it was stated, "but that substantial capacity must be constructed or modified to handle this additional crude thereafter. To make it economically feasible to use this crude will make necessary the extension of the plan for reimbursement of extra transportation costs to include the movement of this crude by tank car to refineries in District 2."

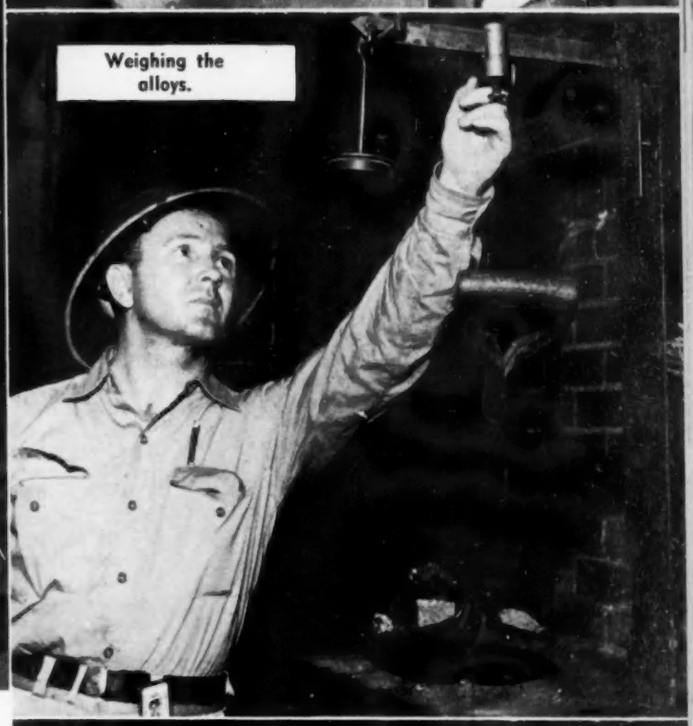
In addition to the question of transportation cost, it was pointed out, there is also the problem of the special alloy steels needed in refineries to run the high-sulphur crudes because of corrosion, and it was suggested that the refinery committee make a determination of the amounts of alloy steel required and that the necessary steps be taken through PAW to obtain the allocations from the War Production Board.

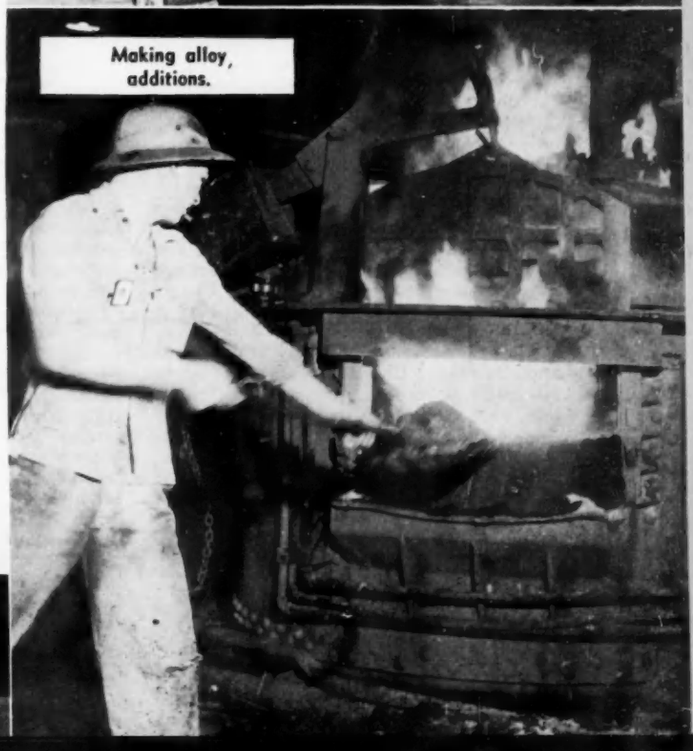
The committee, while on the question of transportation compensation, again criticized the slowness of the government in making settlements, complaining that "in spite of efforts on the part of PAW and of various industry committees, the total amounts owing by the government to the industry in unpaid extra transportation costs, amounts withheld from payment on agreed charter rates, bills for products purchases, etc., are again approximating, if not exceeding, the level of $328,000,000 for the principal East Coast companies which were reported before Defense Supplies

Adding Alloy QUALITY To Refined QUALITY Makes TESCO QUALITY


Tapping a heat of Quality Steel.


Charging the furnace.


Weighing the alloys.


Making alloy additions.

The most important step in making steel castings is the refining of the molten metal. This is accomplished by a vigorous carbon boil . . . then the finishing off of the heat by alloy additions to obtain the specified composition. Through modern electric furnaces and highly skilled melters TESCO is producing electric steel castings of a quality second to none. The TESCO hall-mark is today a symbol of top quality in cast steel products in use around the world.

TEXAS ELECTRIC STEEL CASTING CO.

GOOD CASTINGS — CARBON AND ALLOY STEEL TESCO — HOUSTON, TEXAS

TESCO

BETTER STEEL FOR MODERN INDUSTRY

Corporation gave temporary relief by paying part of the sums withheld.

"The industry is carrying an undue proportion of such accounts receivable and means must promptly be found to ease this heavy and still growing burden," it was asserted.

Lower Gasoline Quality

A further reduction in the quality of gasoline provided for civilian use was recommended by the committee to meet a threatened shortage of tetra-ethyl lead and other of the more volatile constituents normally used, caused by the increase in allowable tetra-ethyl lead content of aviation gasolines, plus increasing demand for aviation and other military gasolines of high lead content.

"In order to meet the increasing military requirements for these products," it commented, "it appears necessary that both the volatility and the octane rating of ordinary motor gasoline be somewhat reduced, and it is recommended that revised specifications looking towards this and be promulgated by PAW."

Natural gasoline supplies should be directed to those plants most needing it for product production, the committee held, and a decrease in the octane number and/or lead content of both regular and premium gasolines is preferable to elimination of the latter, on which many cars, trucks and buses are definitely dependent. Most important, however, prompt consideration should be given to a further increase in the manufacture of tetra-ethyl lead.

The committee expressed appreciation that an effective basis of cooperation between the armed forces and PAW for the working out of a satisfactory world program appears to have been reached, and commented that "while the details of this program are not available, even to our committee, we are of the opinion that the pertinent factors in the world situation are being given increasing consideration."

Concerned Over Equipment

The materials situation was brought before the council following the meeting of the production committee, at which much concern was expressed over the depletion of supplies occasioned by the diversion of the manufacturers to other types of war production and a resolution adopted urging that steps be taken to relieve some of the equipment producers, at least in part, of some of their war commitments and give them certificates of necessity for the procurement of machinery needed to enable them to produce oil field equipment.

Estimates of controlled materials for the first quarter of next year have been submitted by the PAW operating division to WPB, based on an expected 5,400 wells to be drilled, as against 4,265 estimated for the current quarter, it was disclosed in the report of Production Director Don R. Knowlton. Recent surveys in Kansas, Oklahoma and Texas, Knowlton said, definitely disclosed a critical shortage of rock bits, tool joints and drill pipe previously suspected, and negotiations are now under way to encourage and assist manufacturers in increasing production of those items to a maximum, in order to meet the expanded drilling program.

Several other tight spots exist in the material picture on which PAW is working, but at the present rate of drilling, he warned, it is to be expected that shortages will develop from time to time.

Features of Knowlton's report were the marked increase in drilling wells in California, Kentucky, Arkansas and the Rocky Mountain area; the high rate of crude production, now averaging over 4,250,000 barrels daily, and the increase in the number of rotary rigs in operation.

Two rotary rigs and one cable tool rig have been added daily to the number in operation throughout this year, it was stated by Materials Director Frank K. Watts, who reported that nearly 1,200 rotary rigs are currently operating, as compared with slightly over 700 at the beginning of the year, and nearly 1,400 other rigs, compared with about 1,200; a total of nearly 2,600 against 1,900 when the year opened.

Watts pointed out that the daily military consumption of more than 1,000,000 barrels of products, which does not include aviation gasoline, equivalent to the entire contents of 19 55,000-barrel storage tanks and representing the full production of nearly 100,000 average wells and the entire output of more than 100 average-sized refineries.

To meet this need, he said, approximately 19,000 wildcat and development wells will be drilled this year and 22,300 during 1944, not including water input, repressuring and other wells not drilled as potential producers.

"This accelerated program cannot be conducted without materials, and when we realize that this nation's demands for materials currently exceed all available supplies by more than 26 percent, the problem becomes one which cannot be solved by any simple formula," Watts declared.

The problem is accentuated, he added, by the long lag between the making of allocations and the delivery of the finished equipment, because of which, he said, the industry should and could salvage and rehabilitate much more material than it has in the past and should avoid buying or retaining any material beyond actual requirements, so that the limited amount available may be spread as widely as possible.

Watts estimated that before the completion, the average wildcat and development well requires the use of approximately 64 tons of carbon steel, 11 tons of alloy steel, 180 pounds of copper and copper-base alloys and four pounds of aluminum.

"Sufficient—but only sufficient—materials are being made available to PAW to allot to production operators for the necessary conduct of drilling and production operations," he emphasized. "To the extent that allotments are not used or materials are not acquired for use by production operators, to that same extent the petroleum industry is deprived of the use of material. It is necessary that all production operators fully appreciate this fact and cooperate in the realization of an objective by converting into usable items of materials all controlled materials which are allotted by PAW for production operators. It is far better to file supplemental applications for controlled materials and to have these converted into usable items of material than it is to permit any portion of an unused allotment to die in an operator's files and not be converted into an item usable in drilling and production operations.

Seismic Tube Shortage

A serious situation will arise in the field of seismic exploration if WPB refuses to revise its present program for the allocation of electronic tubes, it was disclosed by W. B. Heroy, director of reserves.

Heroy explained that PAW submitted its estimate of requirements for geophysical equipment, but WPB found that the shortage of tubes would necessitate a reduction of about 50 percent in allotments to all claimant agencies. Representations of the need of the industry for this item have been made to the board, which has been informed that the requirements for tubes must not be reduced below the minimum figure furnished by PAW.

Heroy also reported on the recommendations made to the Bureau of Internal Revenue in July with a view to securing a modification in the procedure of the bureau requiring that in certain cases geological and geophysical expenses be capitalized. A response from the bureau, he said, holds that the matter is one of law and not of fact or administrative policy, and that under the decisions of the Board of Tax Appeals such expenditures are capital items.

The bureau, Heroy explained, takes the view that geological and geophysical costs related to the acquisition of property do not come within the purview of the regulation with reference to drilling and development which permits the operator to exercise an option to charge such expenditures either to capital or expense. However, he said, the bureau's opinion is being studied and further representations will be made.

Because of the American Petroleum Institute convention, it was decided to hold the next meeting of the production committee in Chicago on Sunday, November 7, jointly with the technical advisers.

Load Limit Order On Tank Cars Revoked

Tank-car loading requirements imposed by the Office of Defense Transportation July 24 were revoked last week, reportedly because they had been found in many instances to be impracticable.

Under the July 24 order, shippers and carriers were prohibited from moving any railroad tank car, except under specific authorization from ODT, unless it met certain capacity requirements which provided for loading with a quantity equalling or exceeding in weight the marked capacity (not "load limit") in pounds, or equalling the maximum amount permitted under the regulations for transportation of explosives and other dangerous articles, or with a quantity equal to the maximum amount possible without resulting in overflow due to expansion, or with a quantity occupying all of the load carrying space, including the dome up to the level of the outlet wheel control or the bottom of the safety valve flange.

Look out for CONCENTRATION-CELL CORROSION

...the corrosion that hides!

Often better known as "deposit attack" or "crevice corrosion," this action usually attacks hidden and secluded areas of metal. It destroys metal more rapidly than ordinary corrosion.

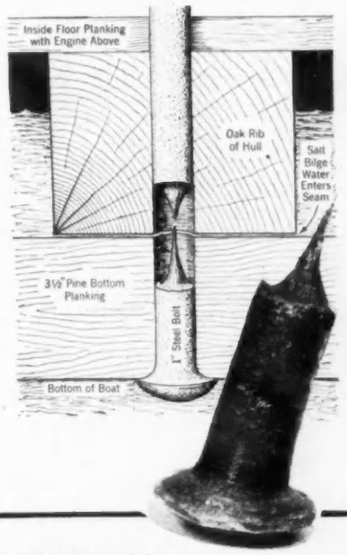
That concentration-cell corrosion "hides away" and is also fairly common may be judged by noting some of the conditions that favor it and where such attacks are likely to occur . . . cracks and crevices in welded seams; unsealed crevices of all types of lap joints; fissures in metal caused by forming operations; *under* and *around* various accumulations on metal surfaces . . . marine growths . . . silt, scum, and salt encrustations and deposits . . . scale in evaporator and condenser tubes; brine, acid or other chemical-solution soaked timbers around tie-rods, staybolts and similar metal members.

Other factors, such as wet packings in idle machinery, stagnant areas in tanks and pipes and many more conditions, far too numerous to list, also favor the action. Preventive measures usually become obvious when each case is examined from the standpoint of the principles of concentration-cell effect.

Our illustrated folder, "How to Recognize and Control Concentration-Cell Corrosion," tells how, why and where this corrosion action attacks so that practical control measures can be devised for practically any situation.

INCO's Technical Service, on request, is prepared to assist engineers further in solving or avoiding concentration-cell corrosion problems. As a first step in securing INCO's help in a specific case, write for a copy of the Corrosion Data Work Sheet.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.


Inside Floor Planking with Engine Above
Oak Rib of Hull
Salt Bilge Water Enters Seam
3½" Pine Bottom Planking
1" Steel Bolt
Bottom of Boat

Actual Example of Concentration-Cell Corrosion

The 1" steel bolt holding down the engine bed of a New York Harbor motor lighter looked like this sample after being in service only two years. See Note 9 below.

PRACTICES for PREVENTING CONCENTRATION-CELL CORROSION

1. In new equipment specify butt joints and emphasize the necessity for complete penetration of the weld metal to guard against even minute crevices.

2. Lap joints should be avoided wherever possible or thoroughly sealed with weld metal or solder. In place of metal, a suitable caulking compound may be used if crevices and voids under the compound can be avoided during application or can be quickly corrected if they appear during service.

3. Existing lap or spot welded joints, that show evidence of crevice corrosion, should be cleaned as well as possible and all channels for liquid penetration —rivet heads, overlaps, and all crevice-like areas—sealed with weld metal, solder or caulked.

4. In design of vessels avoid sharp corners, stagnant areas or other sites favorable to the accumulation of precipitates and other solids.

5. Institute a routine of frequent, thorough cleaning of all metal areas subject to accumulations of deposits, scale or "skins." In marine work this precaution applies to marine growths, silt, scum and salt encrustations and deposits.

6. In the design and operation of tubular heat exchangers, endeavor to provide for uniform flow of liquid with a minimum of turbulence and air entrainment.

7. Provide suitable strainers in heat exchanger cooling medium lines to prevent local obstructions within the tubes which may start deposit attacks, or result in turbulence and impingement.

8. Remove all wet packing materials (unless of the corrosion-inhibiting type) from any equipment scheduled for a long shut-down period since concentration conditions under packings may become similar to those under deposits.

9. Because soaked timbers in contact with metal surfaces — tie-rods, pipes, stay-bolts, and similar members — promote concentration-cell effects, keep tie-rods tight and promptly repair all leaks in wooden tanks, even those that might otherwise be considered trifling. When soaking of timbers cannot be prevented, fastenings of highly corrosion-resisting metals offer the best protection. Fastenings of less resistant metals may be somewhat protected by coating with a suitable paint before installation.

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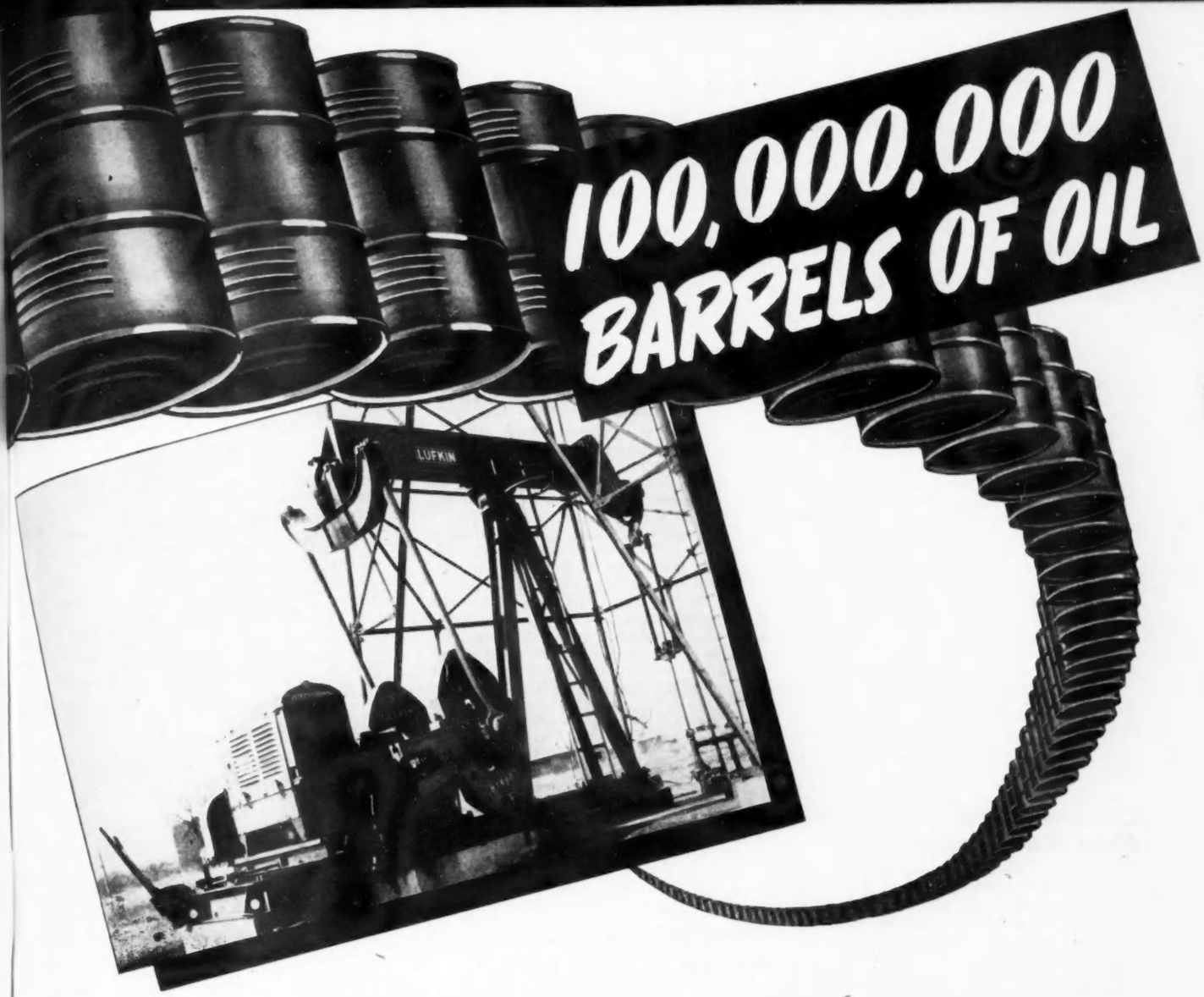

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Though we are still in production, on a "round-the-clock" 24-hour basis, producing *tank gears, ship gears, gun carriages,* and *truck-trailers* for our armed forces, we are also producing considerable quantities of Lufkin oil field pumping equipment.

LUFKIN
PUMPING UNITS

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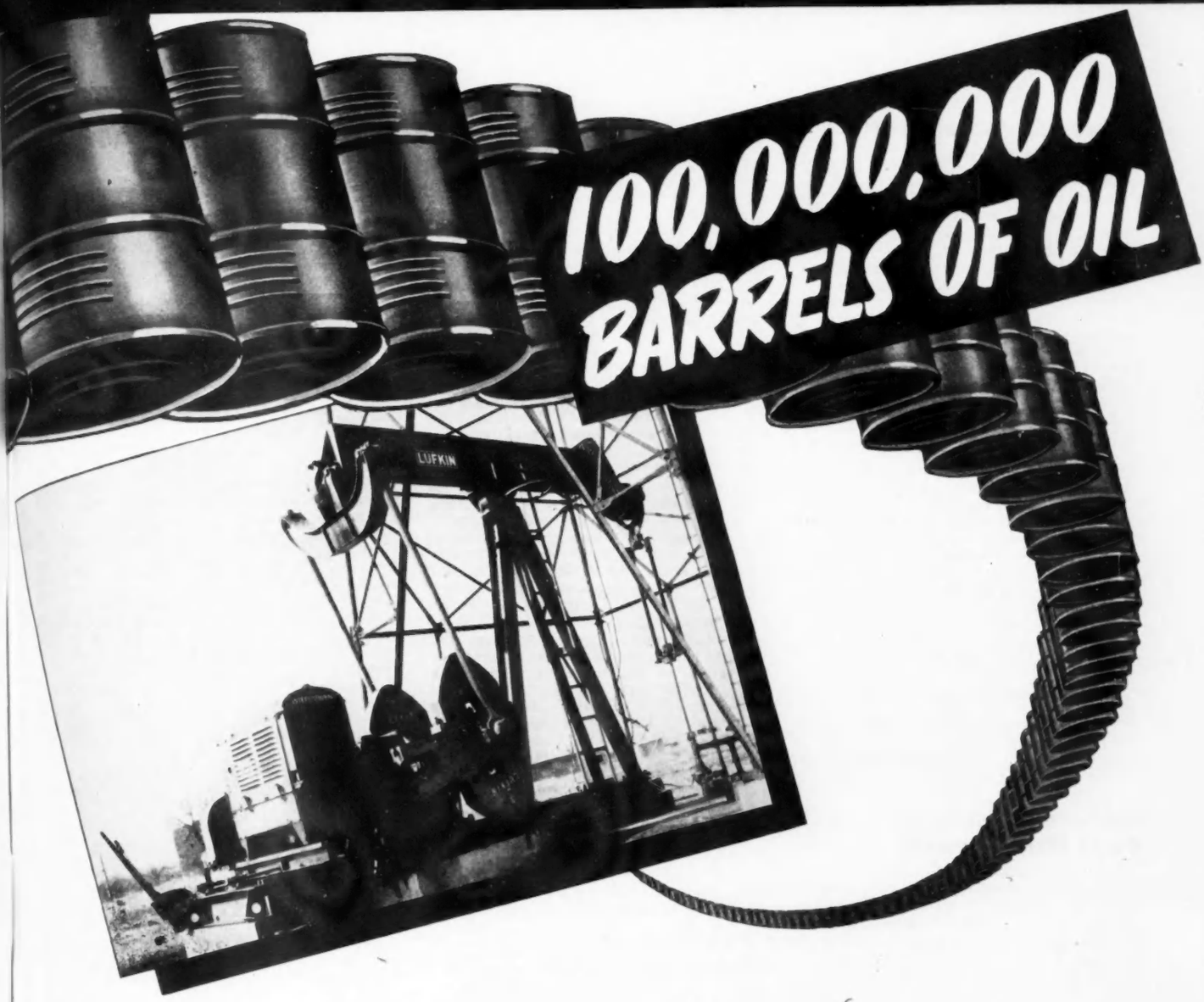

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To meet forthcoming demands upon the oil industry will require the most efficient, trouble-free equipment possible to obtain. An "all-out" effort will be required of every operator.

Plan now to do your part. *Lufkin* engineers will gladly help you lay out a program. Twenty years of successful operation in the oil fields of the world enables us to be of real assistance.

Though we are still in production, on a "round-the-clock" 24-hour basis, producing *tank gears, ship gears, gun carriages,* and *truck-trailers* for our armed forces, we are also producing considerable quantities of Lufkin oil field pumping equipment.

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Texas Mid-Continent Program Complete

Highlighting the program of the 24th annual convention of the Texas Mid-Continent Oil & Gas Association which meets in Fort Worth, October 13 and 14, will be Governor Coke Stevenson and Eric Johnston, president of the United States Chamber of Commerce. The program has been completed, and is as follows:

Wednesday morning, October 13, the president's annual message by George Sawtelle, president of the association; address of Coke Stevenson, Governor of Texas; report of the nominating committee and election of officers and directors.

Wednesday noon, presentation of distinguished service awards and the address of Eric Johnston, president of the United States Chamber of Commerce, both these events to be broadcast by radio beginning at 1:15 p.m.

Wednesday afternoon, question and answer forum on wage and salary stabilization in the oil industry, A. H. Mertwig and Floyd McGown; address of John D. Gill, chairman of the committee on cost and price adjustment of PIWC; address of Wirt Franklin, deputy Petroleum Administrator for War.

Wednesday evening, meeting of the board of directors, and open house and buffet supper at the Blackstone Hotel.

Thursday morning, annual oil men's golf tournament at the Colonial Country Club.

California Failing to Meet War Demands

Oil production in California is not meeting the requirements of the war effort, according to A. C. Rubel, vice president and general manager of Union Oil Company, who spoke to members of the Gulf Coast Section of the AIME at Houston October 4. He indicated, further, that there is very little reason to expect that any significant new discoveries will be made there in the near future. Meanwhile, it is recognized that war demands on California have not attained the peak that will exist when fighting becomes more intensive in the Pacific area.

Oil from California wells is now being run to refineries at the rate of approximately 780,000 barrels daily, he stated, nearly 70,000 barrels of which are withdrawals from storage, and some 13,000 barrels represent accelerated, or forced, production. He regarded as much too optimistic the contemplated program of increased drilling in California that is expected to raise the yield from that state to 820,000 barrels daily by the end of 1944, even with adequate manpower and materials. He estimated that 2500 new wells would have to be completed as producers to attain such a goal, in order to offset the decline in producing ability and abandonment of wells.

The efforts now being made in California to supply demands of West Coast refineries, at the expense of forcing the wells, is doing permanent harm to the fields, creating a real threat to the future of the industry, in the opinion of Rubel.

In spite of all efforts, he revealed that even if the goal of 820,000 barrels is reached, California refineries will still be 100,000 barrels a day short from the standpoint of refinery capacities. Better tanker service can overcome part of this deficiency, but such imports may no more than balance decreasing production. He said that by the end of the current year there will be 20,000 wells on the pump in California fields, and that one of the greatest problems there is how to keep most of these wells on production, since shutdowns and forcing have resulted in the operation at any one time of only about 37 percent of the pumping wells. He predicted 1300 flowing wells would go on the pump in the next 8 months.

Rubel emphasized that the industry has run out of ideas for exploring nonproductive territory. All the regular methods of the geologist and geophysicist have failed to result in an important discovery in California since 1938, and that scientists must perfect some way of locating subsurface overlaps, stratigraphic traps and other favorable geological conditions that hold all our hopes for a comeback in the future, he said. As it is now, he said, when surface geology fails to bring enough information to light, core drilling is the only recourse, and as an exploratory tool the core drill has its economic limitations.

His figures on California recoveries were surprisingly low, averaging, as he claimed, no more than 25 percent, and running as low as 18 percent. These low recoveries, he explained, are due to the lack of effective water drive in most California sands, and the extremely high viscosities of the crudes there. He estimated residual oil in the California fields to amount to nearly 4,000,000,000 barrels, some of which is still recoverable by secondary-recovery methods.

Rubel viewed secondary-recovery programs as offering the best opportunity of increasing production in the fields of the state. There has been very little work of this nature, but several repressuring programs are under way and one water-flood experimental project.

1,000-Mile Alaskan Pipeline Secret Is Revealed

The United States Army revealed that an emergency gasoline pipe line stretching 1000 miles from Skagway, Alaska, through the Yukon Territory to Fairbanks, has supplied thousands of gallons of gasoline to air bases in the interior of Alaska and Canada since its completion in January of this year.

Although the line, constructed by Army engineers, has been in use for nine months, no official announcement of its presence was made until last week.

"The Skagway-Fairbanks line really saved our bacon last winter," one air base commander said. "We had hundreds of planes going through and it would have been impossible to haul enough gasoline by trucks or to fly it in."

Merger Completed

Superior Oil Corporation and Sunray Oil Company have completed the merger that has been under way for some time. C. H. Wright, president of Sunray Oil Company is president, and F. B. Parriott is chairman of the board of directors of the new corporation.

Osage Leases Offered

Auction of oil and gas leases will be held at Pawhuska, Oklahoma, October 27, commencing at 1:30 p.m., with a total of 17,959 acres being offered in 115 tracts. All the acreage is in Osage County on restricted lands, and the tracts are, in most cases, quarter sections.

Petroleum Section AIME To Meet in Los Angeles

The Petroleum Division of AIME will hold its fall meeting in cooperation with the Southern California Section AIME, in Los Angeles, California, October 21 and 22, at the Ambassador Hotel.

Technical sessions will include the following papers: "Fingering and Coning of Water and Gas in Homogeneous Oil Sand," by M. G. Arthur, Union Oil Company of California; "A Statistical Approach to the Interstitial Characteristics of Sand Reservoirs," by Jan Law, Dominguez Oil Fields Company; "Optimum Time to Bail and Wash Wells Producing Sand," by J. R. Stitt, Western Gulf Oil Company; "The Precipitation of Asphalt Through Crude Oil by Flow Through Silica," by D. L. Katz, Herman Dykstra and Karl Ben, University of Michigan; "Possible Application of Secondary Recovery Methods in California," by C. L. Morre, PAW; "Surface Deposits of Bituminous Sands and Shales in California as Possible Sources of Oil," by G. B. Shea, United States Bureau of Mines; "Flow Into Slotted Liners and Obstructed Core Samples," by C. R. Dodson and W. T. Cardwell, Standard Oil Company of California; "Oil and Gas in the Great Lakes and How They May Be Developed," by Henry Emmett Gross; "State Legislation and the Oil Industry of California," by R. P. McLaughlin; "Gun Perforation for Multi-Zone Control in California," by T. H. Wallace, Western Gulf Oil Company.

There will also be symposiums on various subjects.

Work on West Texas Line To Start October 25

Construction work on Magnolia Pipe Line Company's second West Texas trunk line outlet that will involve the laying of 336 miles of 12-inch from Midland terminal to Corsicana for an initial capacity of 42,000 barrels daily will start October 25. It is scheduled to be in service late in February, providing pipe delivery time-table is adhered to by mills. Booster stations will be installed at Midland, Sweetwater and DeLeon, and may later be increased to 7 thus giving the line a capacity of 60,000 barrels daily. Eleven cars of pipe have been unloaded at Midland.

Oklahoma Contracting Company, Dallas, was given contract to build 255 miles of line, extending east from Midland to the Bosque River crossing, Bosque County, using 3 gangs if pipe is available. This portion of the line will be electrically welded. Ray O. Jones and Bert Brooks, Dallas firm, will lay the east 81 miles into Corsicana, starting November 1 with one spread that will utilize the pressure-weld method.

Seek Permit for Small Line in Michigan

Leonard Pipe Line Company an Midwest Pipe Line Company have asked federal authorities for permission to construct jointly a 7½-mile 4-inch pipe line from the Rose Lake field, Osceola County, to Reed City, Michigan. Both pipe line and railroad facilities are available at the latter point to move the oil to refineries.

Light Fuels and Gasoline Stocks Gain This Week in Spite of Heavy Demand

Gains in stocks of light fuels and gasoline were noted last week, but heavy fuel supplies dropped. Runs to stills gained slightly, but daily average production of crude oil, crude stocks, production of gas oil and distillates, and production and stocks of heavy or residual fuels, all decreased as compared with last week.

The gain of 952,000 barrels in light fuels brought total stocks of these items to 41,280,000 barrels. Gasoline stocks advanced 104,000 barrels, resulting in a new total of 70,128,000 barrels. As compared with a year ago, these stocks are 8,080,000 barrels off.

These slight increases have brought the index of civilian supplies of gasoline, light and heavy fuel oil on the Eastern Seaboard to 44.4 percent of normal, against 43 percent last week. PAW has issued directives aimed at more efficient distribution of petroleum products to meet the differing impacts of war on East Coast consumers. Coordination of all shipments of principal petroleum products by all importers in District 1 is being asked for, so that all supplies may be directed to the points where they are most needed in accordance with the supply program of PAW.

In the Mid-Continent the demand for burning oils is picking up and inquiries from Chicago for kerosene and range oil are increasing. In the Cleveland area the demand for fuel oils continues active. Light fuels appear "easy" in the New York territory and indications are that at this time there is plenty of fuel oil in secondary storage.

The decrease in heavy or residual fuel amounting to 252,000 barrels was brought about largely by shifting 986,000 barrels of this type of oil from storage in California to refinable crude oil stocks. This transfer brought the stock total to 66,407,000 barrels this week, aided by a drop of 77,000 barrels in output of this type of fuel.

West Coast refiners have been instructed to decrease their output of premium gasoline in order to increase production of aviation and 80-octane, all-purpose military gasoline. Telegrams sent to all refiners on the Pacific Coast and PAW District 5, instruct them to limit their manufacture of premium gasoline to not more than 10 percent by volume of the total civilian automotive gasoline manufactured. This step is being taken to build up stocks of aviation and all-purpose military gasoline. District 5 includes California, Oregon, Washington, Nevada and Arizona.

Total runs to stills this week were up 3000 barrels amounting to a daily total of 4,159,000 barrels, bringing 0.1 percent gain in refinery operating capacity for the week, with this percentage standing at 86.2. Runs to stills are approximately

Crude Oil Production in the United States

(Estimates compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED October 9	October 2
Arkansas	76,650	76,300
California	780,100	778,350
Long Beach	30,700	31,000
Midway-Sunset	55,550	56,600
Kettleman Hills	41,600	42,450
Wilmington	94,000	92,900
Rest of State	558,250	558,400
Colorado	7,000	7,050
Illinois	235,200	220,600
Salem	29,750	29,200
Louden	38,900	37,500
Other New Pools	155,350	142,950
Old Pools	11,200	10,950
Indiana	14,100	14,400
Kansas	265,600	272,250
Kentucky	22,650	24,650
Louisiana	360,700	360,400
North	81,500	81,500
South	279,200	378,900
Michigan	56,400	56,400
Mississippi	48,550	48,830
Missouri	95	95
Montana	25,600	22,550
Nebraska	1,740	1,700
New Mexico	109,500	109,500
New York	15,100	13,650
Ohio	9,200	8,800
Oklahoma	326,850	325,800
Oklahoma City	52,250	52,500
Seminole Area	73,750	72,950
Rest of State	200,850	200,350
Pennsylvania	44,900	43,500
Tennessee	35	30
Texas	1,892,150	1,839,200
Upper Gulf Coast	519,300	485,600
East Texas Field	368,500	380,500
Rest of Eastern Texas	135,450	131,250
Lower Gulf Coast	189,200	169,300
Southwest Texas	78,250	75,000
South Central Texas	20,750	19,200
West Texas	354,200	333,550
North Texas	138,500	140,700
Panhandle	88,000	104,100
Utah	10	10
West Virginia	8,800	9,250
Wyoming	101,800	102,950
Total United States	4,402,730	4,336,285

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.
(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8– 5	3,650	10–21	278,607	5–26	87,769	4–22	39,562	10–28	116,237	8–26
1940	3,890	3–16	3,690	6–22	265,865	8–31	102,817	4–20	49,051	10–19	109,135	9–14
1941	4,337	11–22	[1]4,120	10–18	266,187	3–29	99,727	3–29	[1]54,983	11–15	102,448	1– 4
1942	4,337	2– 7	3,961	1– 3	263,208	3–28	[1]109,281	3–14	49,861	11–14	95,857	1– 3
1943	[1]4,376	9–18	4,227	8–28	245,752	5–29	94,159	3–20	42,913	1– 2	72,881	1– 2
Lows:												
1939	[2]1,601	8–26	3,125	2–18	[2]229,127	10–12	71,152	10– 7	20,722	4–15	105,397	4– 8
1940	3,335	11–30	3,370	1– 6	237,339	1–27	79,847	11– 9	23,551	4– 6	102,344	2–10
1941	3,364	1–11	3,490	1–18	240,399	11–15	79,923	10– 4	28,381	4–12	90,914	7–12
1942	3,297	7– 4	3,393	5–23	231,896	12–12	75,934	12– 5	29,240	4–25	72,962	12–26
1943	3,821	1– 9	3,579	3–13	232,191	1– 9	70,024	9–25	30,732	4– 3	66,407	10– 2

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Runs to Stills Daily	Stocks Week End	Gasoline Production Weekly	Stocks Week End	Gas Oil & Distillate Production Weekly	Stocks Week End	Residual Fuel Production Weekly	Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	3,647	35,966	6,796	77,816
August 29	3,964	3,697	249,007	11,300	80,831	3,850	42,060	6,875	78,034
September 26	3,909	3,802	242,785	10,954	80,550	4,215	45,945	7,094	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 31	4,133	3,788	238,420	11,127	74,977	3,765	36,363	8,478	66,877
August 28	4,196	4,227	236,170	12,420	72,525	4,351	37,928	8,732	67,250
September 25	4,344	4,156	233,013	12,206	70,024	4,608	40,328	8,560	66,659
October 2, 1943	4,328	4,159	.....	12,414	70,128	4,566	41,280	8,483	66,407
October 3, 1942	3,685	3,902	[4]242,785	11,558	78,080	4,226	45,727	7,081	79,303
Change:									
In week	—16	+3	—668	+208	+104	—42	+952	—77	—252
In year	+643	+257	—9,772	+856	—7,952	+340	—4,447	+1,402	—12,896
In year	+17.4%	+11.5%	—4.02%	+7.4%	—10.2%	+8.04%	—9.7%	+19.8%	—16.3%

[1] All time peack. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, September 26, 1942.

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254,000 barrels more per day this year than at the same time last year.

Estimated production of gasoline stood at 12,414,000 barrels for the week, a gain of 208,000 barrels.

Daily average crude production was off 16,000 barrels with the heaviest drop coming from Kansas. Minor gains in a few districts failed to keep the total of 4,328,000 from dropping below last week's yield.

Crude Output Rises To 4,402,730 Barrels

With a sharp increase in daily output reported from Texas last week, supported by minor gains in a few other districts, daily average production for the United States was up 66,445 barrels over last week. The daily average was 4,402,730 barrels against 4,336,285 barrels a week ago.

Humble Pipe Line Prorates West Texas Areas

Pipe-line proration was applied to four oil areas in Andrews and Ector counties by Humble Pipe Line Company, effective October 1, due to the Texas Railroad Commission having authorized greater allowable for these West Texas fields than can be accommodated by existing pipe-line facilities.

The North Cowden field is restricted to 86 percent of the allowable while the Emma and Fuhrman fields will produce 96 percent of the allowable. The Mascho field, which is dependent upon tank truck deliveries to Humble Pipe Line Company, was cut back to 83 percent of authorized quota.

These production restrictions may not prevail long as there is some possibility of arrangements being made for Humble to deliver the surplus crude to Atlantic Pipe Line Company's Wink-Midland line, which cuts across Ector County. The latter has some idle space in its line to the coast.

All Purchasers Agreed In Oklahoma and Kansas

All principal purchasers of crude oil in Oklahoma and Kansas are posting the same prices since announcement October 1 that Shell Oil Company increased its price on lower gravities to conform with the schedule of other buyers. Starting at 85 cents per barrel for below 21 gravity, a 2-cent differential makes the price of 40-gravity and above $1.25 per barrel. (THE OIL WEEKLY, October 4, page 51.)

Houston Geological Society Elects Leslie Bowling

New officers were elected at the annual meeting of the Houston Geological Society October 8. The meeting was addressed by Dr. W. Taylor Thom, Jr., head of the department of geology, Princeton University, who spoke on "The Structural Evaluation of The Big Horn Basin Region."

Leslie Bowling, Union Oil Company, was named president of the society. W. B. Milton, Jr., Gulf Oil Corporation, vice president; W. B. Moore, The Atlantic Refining Company, secretary; and Jerry Smith, Pan American Producing Company, treasurer. The new advisory committee includes: S. G. Gray, Shirley L. Mason and Joseph Hornberger, Jr.

September Completion Rate Slumps With Most Districts Declining to New Lows

With a loss in daily average rate of completions amounting to four wells, plus, drilling activity throughout the United States slumped noticeably during September, as compared with August. This drop was shared by all districts and by all types of activity except possibly wildcatting. The total of 1467 wells brings the figure 516 below last month, and 118 below July. However, both July and August calculations were on a five-week basis, whereas September included only four weeks. The daily average for September was 52 wells plus, compared with 56 plus in August.

The decrease indicates that there is a strong probability of further slumps during the rest of this year, and should the rate set for September continue during the next three months, total completions for the year will fall below the previous 19,000 estimate by three or four hundred wells. It is almost a certainty that the September rate will not be maintained, and the present percentage of decrease of 16.4 as compared with last year, will be further reduced by the end of the year.

A number of factors combine to keep drilling lagging, notably shortage of labor to keep rigs running, and the general apathy permeating parts of the industry because of the low price of oil and the consequent difficulty in making ends meet.

For the past three months completion totals were: July, 1585; August, 1983; September, 1467.

Comparing the past nine months, with the same period last year, total completions are off 2707. From January to September, last year, inclusive, 16,479 wells were completed; for the same period this year, the total is 13,772 wells.

Further checks on percentage decline as compared with last year show that minuses prevail in a majority of districts. By actual count, of the 39 states and districts listed on the completions sheet, only 8 pluses are shown, and of these, 2 are in states that do not yet have oil prodcution. California and certain districts of Texas have pushed ahead of last year, and there have been less important gains in Colorado, Kentucky and Montana.

Detailed reports on October 1, show 2394 drilling wells, 291 rigs up, and 346 outfits shut down. As compared with September 1, the declines are: drilling wells, 183; rigs up, 42. The number of rigs shut down increased 13 during September, with a total of 346 shown on October 1, as compared with 333 on September 1.

It is possible that next month may show slight increase in activity in 12 southwestern Michigan counties as a result of a recent spacing order by PAW. The order provides that an oil well may be drilled on a 10-acre tract provided the well does not exceed 1400 feet in depth. Previously the spacing pattern was 1 well to 20 acres for wells of 2000 feet or less. PAW stated that the action was taken in an attempt to provide additional production capacity close to the important refining, industrial and consuming centers of the Middle West.

Standard (New Jersey) to Get $22,332,484 form Mex

Standard Oil Company (New Jersey) subsidiaries will receive $18,391,641 plus interest amounting to $3,940,843, in settlement of claims against the government of Mexico, arising out of the expropriation of its properties in 1938, according to a recent announcement made by the company.

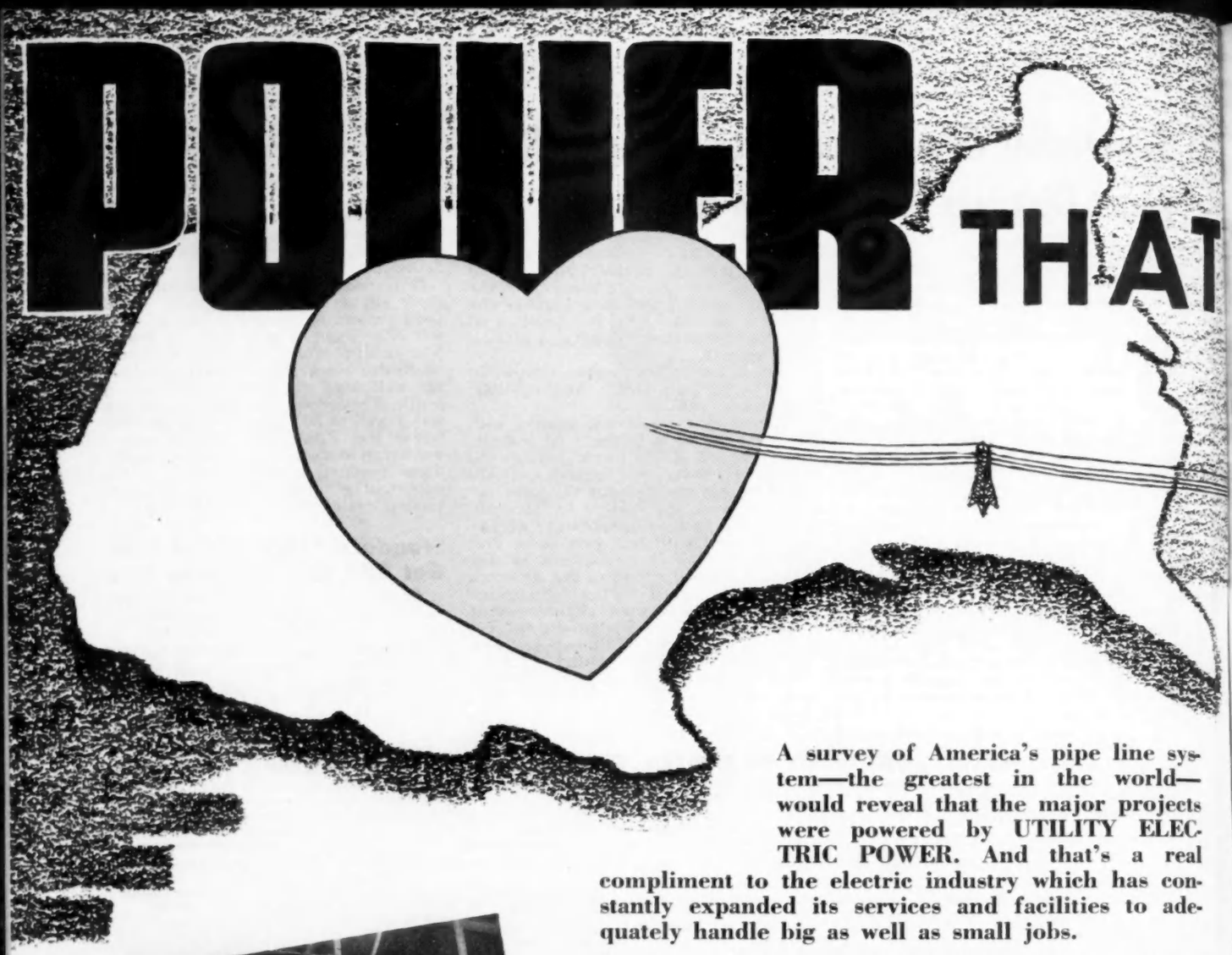
WELLS COMPLETED IN UNITED STATES THROUGH SEPTEMBER

(Figures compiled from weekly reports of editorial staff, with following exceptions: Arkansas data from Arkansas Oil & Gas Commission; California from A.P.I. except for September; Illinois from Illinois Geological Survey except for September; Indiana from Indiana Division of Geology; Missouri from Missouri Geological Survey; Bradford and Kane Clarendon, Pennsylvania, from The Producer's Monthly; Tennessee from Tennessee Division of Geology.)

State or District	MONTHLY COMPLETIONS: September, 1943 — Details for Sept., 1943: New Wells *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions: Sept., 1943[1]	Aug., 1943[3]	Sept., 1942[2]	Total Footage Sept., 1943	CUMULATIVE COMPLETIONS: First 9 Months — Details, Jan.-Sept., 1943: New Wells *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions: Jan.-Sept., 1943[4]	Jan.-Sept., 1942[5]	Percent Change	Total Footage 9 Months, 1943	RIGS IN OPERATION — Details for October 1, 1943: Drilling	Rigs Up	Shut Down	Total: Drilling and RU: Oct. 1 1943	Sept. 1 1943	Oct. 1 1942
Alabama							1					2			2	3	— 33.3	11,127			1			1
Arizona			4			4			11,034			4			4	2	+100.0	11,034	1	1		2		
Arkansas	3		4			7	25	24	9,000	83	1	66	2	1	153	165	— 7.27	731,090	43	6		49	42	26
California	77	3	2		5	87	140	71	309,304	797	22	276		24	1,119	557	+100.9	3,592,460	19	8		27	300	152
Colorado							9	2		10	2	9			21	10	+110.0	54,058	17		8	17	5	13
Florida							1					1			1		+100.0	715	2	1	1	3	3	4
Georgia												1			1	2	— 50.0	1,240						
Illinois	76		56	1		133	147	184	337,657	725	10	518	17	30	1,300	1,521	— 14.5	3,190,927	162	27	10	189	183	205
Indiana	5	2	15			22	32	31	73,856	62	6	121		4	193	288	— 32.9	359,575	38	4	10	42	47	53
Iowa																				1	1	1	1	
Kansas	56	2	65		5	128	185	141	451,231	620	22	558	18	21	1,239	1,229	+ .81	4,102,952	221	28	6	249	246	185
Kentucky	17		21			38	55	16	70,583	134	5	127	2	2	270	111	+143.2	526,913	67	3	4	70	68	22
Louisiana	13		8			21	57	61	239,793	235	33	167			435	729	— 40.3	3,091,047	96	8	16	104	114	98
North	3		1			4	20	28	94,483	76	25	80			181	331	— 45.3	811,732	37	5	11	42	34	20
South	10		7			17	37	33	145,310	159	8	87			254	398	— 36.1	2,279,315	59	3	5	62	80	76
Michigan	19	9	31			59	74	50	152,230	160	38	225		7	430	510	— 5.68	1,091,107	95	15	25	110	117	104
Mississippi							4	12		13		21			34	88	— 61.3	182,853	8	2	5	10	11	12
Missouri				4		4	2	3	4,570	1	2	18			21	24	— 12.5	18,567	2		1	2	2	3
Montana	5		3			8	27	10	18,833	99	33	30			162	147	+ 10.2	351,940	47	9	11	56	45	34
Nebraska								1								28	— 1.0		1		1	1	2	15
New Mexico	23	1	8		4	36	20	30	597,237	126	6	54		10	196	302	— 35.1	597,237	67	10	17	77	79	52
New York	42			32		74	122	118	97,320	545	4	5	308		862	935	— 7.81	1,187,512	90	27	16	117	120	102
North Dakota																							1	
Ohio	15	11	15			41	83	106	113,015	103	294	221	1	12	631	828	— 23.7	1,589,108	160	23	38	183	186	201
Oklahoma	42	11	74		8	135	165	97	405,146	385	72	459	41	70	1,027	1,086	— 5.43	3,127,795	286	30	2	316	297	199
Oregon																					1			1
Pennsylvania	108	22	10	97		237	271	355	404,104	916	206	70	833	10	2,035	3,040	— 33.1	3,456,792	216	35	45	251	270	361
South Dakota																			1			1	1	2
Tennessee							1				2	4			6	8	— 25.0	6,134	2	1	1	3	5	2
Texas	206	19	130	1	8	364	466	297	1,607,521	1,566	99	1,270	40	84	3,059	4,233	— 27.7	12,816,145	642	38	102	680	626	499
E.T. Border							1	3		13		3			16	12	+ 33.3	100,114	7			7	8	10
E. Tex. Field													5		5	16	— 56.2	11,950						
Rest of E. Tex.	8	1	13			22	25	26	130,362	75	4	91		1	171	303	— 43.5	935,538	41	3	6	44	42	39
North	42		31	1	2	76	131	50	201,586	293		385	33	26	737	715	+ 3.07	1,960,871	111	4	24	115	107	72
West Central	16	2	13			31	52	17	72,830	79	13	179	1	8	280	280		637,537	53	3	9	56	55	31
West	70	2	13		6	91	91	70	369,420	518	6	113		39	676	1,173	— 42.3	2,858,540	217	17	33	234	216	142
Panhandle	8	1	3			12	21	25	37,416	94	25	22		7	148	309	— 52.1	437,725	32		5	32	29	42
Upper Coast	15	1	13			29	39	18	267,780	128	5	107			240	363	— 33.8	1,858,640	61	5	6	66	74	55
Lower Coast	31	10	25			66	67	53	390,127	258	36	172	1	2	469	648	— 27.6	2,795,822	90	4	10	94	55	75
Southwest	14	2	14			30	36	30	109,079	100	10	161		1	272	330	— 17.5	1,081,841	23	1	3	24	32	23
South Central	2		5			7	3	5	28,921	8		37			45	84	— 46.4	137,567	7	1	6	8	8	9
Utah																			2		1	2	1	
West Virginia	6	38	15			59	76	70	146,964	60	320	78		18	476	560	— 15.0	1,319,828	66	9	18	75	55	40
Wyoming	9		1			10	20	15	48,324	76	3	16			95	73	— 30.1	403,799	43	5	5	48	42	34
Total U. S.	722	118	462	135	30	1,467	1,983	1,694	5,097,722	6,716	1,180	4,321	1,262	293	13,772	16,479	— 16.4	41,821,955	2,394	291	346	2,685	2,868	2,420

* Includes distillate wells. [1] Wells completed in 4 weeks, or 28 days, ended September 25, 1943. [2] Wells completed in 4 weeks, or 28 days, ended September 26, 1942. [3] Wells completed in 5 weeks, or 35 days, ended August 28, 1943. [4] Wells completed in 39 weeks, or 273 days, ended September 25, 1943. [5] Wells completed in 39 weeks, or 273 days, ended September 26, 1942. [6] Water input, gas injection, and salt water disposal wells.

POWER THAT



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INVEST IN WAR BONDS

U. S. Field Operations

Illinois

Jefferson County McClosky Strike Appears Small

Jefferson County appears to have another small McClosky lime pool opener at Bell Brothers' National Bank 1, E½ NE NE 24-1s-3e. The well showed saturation in two breaks at 2778-82 feet and 2860-69 feet and a drill stem test at 2860-81 feet made 275 feet of oil and 25 feet of out-cut mud in one hour. Casing was set to 2885 feet and the operators are waiting on cement.

Edwards County: First National Petroleum Trust's Brown 1, S½ SW SW 6-2s-11e, an Aux Vases pool opener, flowed 65 barrels of oil in 8 hours while cleaning out 25 feet off bottom. The well was given a 20-quart shot in pay at 3012-20 feet.

White County: Skelly Oil Company continues to test its pool opener, Ramming 1, SW SE NE 24-5s-10e, after placing the well on pump. In a late gauge it made 7 barrels of oil and 30 barrels of water from McClosky lime at 3092-97 feet and 3007-14 feet.

Gulf Refining Company's Connery 1, SE SE NW 1-5s-8e, a disappointing prospective pool opener, is testing after a squeeze job to shut off water, which is still entering the hole along with a slight amount of oil from McClosky lime at 3305-18 feet.

Effingham County: C. E. Stout and associates' Bushue 1, SW NW 16-6n-6e, which opened a McClosky lime pool 4½ miles east of the Mason pool, has been completed for 245 barrels of oil and 25 barrels of water daily on pump. The water content is diminishing.

Shelby County: Ayward Petroleum Company is waiting on cement at Moran 1, NE NW 27-10n-5e, an extension attempt for the Stewardson pool, after running a fourth squeeze job to shut off water. The well found saturation in the Aux Vases sand and set casing to 1934 feet. The well showed oil and water in preliminary tests.

Saline County: J. H. Gilliam and associates' Sisk 1, SE NE NW 15-10s-6e, a wildcat 6 miles south of Harrisburg, which showed for a gas pool opener several weeks ago, has been completed and is holding great interest for oil operators. When Waltersburg sand, topped at 1490 feet, was tested the well made 590,000 cubic feet of gas daily and sprayed oil. Total depth is 2440 feet.

Jefferson County: J. H. Williams' Dalton Community 1, SE SW 13-2s-4e, which opened the North Markham City pool, after flowing several days, was placed on pump and in initial test made 517 barrels in 24 hours from McClosky lime at 3125-29 feet. The well was treated with 2000 gallons of acid.

Clay County: The final figures on Superior Oil Company's Hinterscher 1, NE SE NW 11-4n-8e, which extended the one-well Ingraham pool northeast, were disappointing. After swabbing 50 barrels of oil in 8 hours from McClosky lime, the well was completed on pump for 15 barrels in 24 hours after 1000 gallons of acid. The pay was found at 3125-29 feet.

Coles County: Lario Oil & Gas Company has made a tentative location for Stuart B. Scott 1, SE NW NE 25-12n-7e, ½ mile east of Anthony Keating's Uphoff 1, which was completed a few months ago for an Aux Vases sand discovery, at the south edge of Mattoon. Uphoff 1 is making about 30 barrels daily on pump.

Indiana

Field Activity Shows Slight Decline in Week

Peter Fox and Sons' Carstan 1, NE NE NE 5-32n-9w, is still holding the interest of state operators. The well, located in rankest wildcat territory 70 miles southeast of Chicago in Lake County, is drilling below 1200 feet on a scheduled 2500-foot test. Big Chief Drilling Company is contractor for the well.

Operations in Indiana took a slight dip this week, moving down from 71 to 69. These operations included, 37 wells drilling, 20 locations, 3 rigging tools and 9 inactive tests. First reports totaled 5, an increase of 1.

Wildcat operations continue to increase with 32 operations under way this week as compared with 29 last week. Fifteen wells were drilling, 11 were locations, 2 were rigging tools and 4 tests were inactive. First reports totaled 3, the same as last week.

Kentucky

Discoveries in Webster And Union Counties

Two discovery wells were completed in Western Kentucky during the week to increase interest in Webster and Union counties.

W. R. White completed H. Z. Clark 1, 23-M-21, in Webster County as a Pennsylvania sand producer. The well on initial pumping test yielded 10 barrels of oil in 24 hours, from pay at 1239-46 feet. The producer is the discovery well of the Clay pool.

In Union County, N. E. Davis' City of Uniontown 1, 20-P-19, extended the Uniontown pool with production from the Waltersburg sand, in which pay was recovered at 1703-29 feet. On initial pumping test the well made 72 barrels in 24 hours.

Operations in Kentucky dropped to 75, the same figure recroded two weeks ago. Fifty-seven of the wells were drilling. Nine were rigging tools, 5 were locations and 4 tests were inactive. First reports totaled 11 as compared with 15 last week. Twenty-nine wildcat operations were in various stages and they included, 22 wells drilling, 2 locations, 4 wells rigging tools and 1 inactive test. First reports totaled three, a drop of three from last week.

The Poole pool is proving one of the best new producing areas in the state. It now has 8 producers and this week saw completion of 2 wells for a total of 500 barrels of oil, the bulk of the new production in the state's completions.

Oklahoma

One New Field; One Extension for Week

A new Mississippi lime field has been discovered in McPherson County at Adair and Morton's Paden 1, SW SW SE 10-18s-1w, which pumped 20 barrels of oil hourly with no water on preliminary test of the formation which was drilled from 2750 to 2770 feet. Location is 3 miles northwest of North Canton production and directly east of the north end of McPherson field. The strike is to the east of the McPherson trend but the indicated productivity and the finding of the lime relatively high, indicates a good field, if of indefinite area.

Phillips County: Skelly Oil Company is extending Ray pool with Graham 1, SW NW NW 23-5-20w, which is showing for Arbuckle lime production. Hole is at 3524 feet in the pay with casing set at 3492 feet after finding the top of the formation at 3491 feet. On initial test the well swabbed about 1 barrel per hour, and after a light treatment with acid, the swab test increased to 54 barrels in a short test and a fill-up of 700 feet was made in 7 hours. Testing is being continued.

Dickinson County: Nate Appleman et al's Shockey 1, NEc SE 18-14-1e, is a wildcat stake on the recently proven northeast trend of Mississippi lime production and is 3 miles from a producer.

Stafford County: Skelly Oil Company's Toland 1, CSL SE SW 22-25-14w, is standing active, but showing for a probable extension well to Kipp production. Pipe is cemented at 3886 feet. Lansing lime at 3707 feet showed some saturation. No test has been made to date.

Oklahoma County: Ohio Oil Company's Dahl 3, NW SE SE 31-14-3w, old Wilcox sand producer in Edmond field, blew out while being abandoned. Casing was being pulled by a salvage crew when the well began making gas estimated at more than 25,000,000 cubic feet from an undetermined source.

Two Wells Show for New Pools; Others Favorable

What may be a new pool for Okfuskee County is drilling in Cromwell sand and showing some saturation on drill-stem tests. Gulf Oil Corporation and Devonian Oil Company's Curry 1, SE NW SE 2-12-8e, is below 3595 feet and drilling in the pay. On one test, the tool was opened 30 minutes and filled 120 feet with oil-cut mud. Earlier cores showed sandy lime, some dry and some showing saturation. From present indications this well appears to be showing as a pool opener although no complete test has been made.

Woodward County: The most northwesterly test in the state, Northern Ordnance and Carter Oil Company's Bradshaw 1, C SE SE 28-22-17w, which last week was reported as showing slight

saturation in Hunton lime at 9326-9336 feet, took a drill-stem test and failing to show commercial production, continued drilling and is now in shale below 9702 feet.

McClain County: Carter Oil Company's Cunningham 1, C SE SW 4-7n-3w, is in shale and lime at 8614 feet and nearing important strata, while its Johnson Ranch 1, C SW NE 13-8n-4w, is drilling shale at 6370 with nothing showing.

Washita County: Gulf Oil Corporation's Hopkins 1, C NW SE 8-8n-20w, deep test in the southwest corner of Oklahoma, has repaired pump engine and is drilling Pennsylvanian formations below 8845 feet.

Noble County: Sinclair Prairie Oil Company's Bradbury 1, NE SE NW 29-22-1w, which picked up some saturation in second Wilcox sand but on test the sand failed to show commercially, has abandoned at 5139 feet.

Ellis Conuty: Gulf Oil Corporation and Sinclair Prairie Oil Company have staked No. 1, C NE SW 27-24-26w, which will test all formations to 10,000 feet or more, depending upon findings.

West Texas

Andrews County Well May Mark New Permian Trend

Opening of a new production trend in the Permian Basin may be involved in the recent southeastern Andrews County discovery by The Texas Company's John Mabee 1, which is in process of completion after plugging back from sulphur water at 4760-70 feet. It is 16 miles east by north of the North Cowden field, and is the first strike in the so-called Midland Basin. There is a possibility that it marks the beginning of a series of producing areas to the east and parallel to the central platform region, which embraces trends from Pecos to Gaines County. Mabee 1 tested 10 barrels of fluid hourly, averaging 37 percent BS and drilling water, on 22 hours of swabbing after plugging back to 4745 feet, and will be acidized for completion. First oil was found on top of San Andres at 4640 feet.

Gaines County: The Texas Company's Parmer County 1, a wildcat in the southeast part of that county, was drilling lime at 5270 feet with cuttings at 5195-5200 feet yielding a nominal oil stain. This prospect topped Yates sand at 3350 feet, elevation 3120 feet—139 feet high to a 5004-foot wildcat 3¾ miles to southwest in Andrews County.

Honolulu Oil Corporation's Homann 1, seven miles northeast of Seminole, was scheduled to resume drilling below 7-inch at 3719 feet, necessitated by an estimated flow of 15,000,000 feet of dry gas from Yates, topped at 3370 feet, elevation 3250 feet. The gas flow makes this an outstanding prospect for Permian oil production.

Wildcats: Sunray Oil Company's Reed 1, West Central Cochran County, yielded an abundance of sulphur water with trace of dead oil after acidizing with 2500 gallons through perforations at 5062-70 feet in San Andres, topped at 4310 feet, and will perforate lower saturation at 5080-90 feet. Other tests in the general area have indicated possible production, but the lime is subnormal in porosity. In Dawson County, Seaboard Oil Company's Spraberry 1 tested sulphur water in San Andres, topped at 3535 feet, 43 feet high to nearest failure drilled by Magnolia Petroleum Company, and was drilling at 3960 feet on a 6000-foot depth contract. Gulf Oil Corporation's Dean 1, near the east edge of Dawson County, was drilling dry lime at 9433 feet. In Hale County, Amerada Petroleum Corporation's Kurfees 1 failed to recover drill pipe lost when bottomed at 8744 feet, and will sidetrack at 6750 feet. Golbe Oil & Refining Company's Ellwood 1, projected 7500-foot test for Hockley County, was drilling at 4620 feet, with top of anhydrite at 2015 feet considered high for the area. It is 2¼ miles northeast of a 5080-foot failure drilled in 1930 by World Oil Company.

Ordovician Projects: I. T. Dennis and associates have sold acreage to Gulf Oil Corporation and Shell Oil Company at $50 per acre with obligation to drill McPherson 1, C N¼ of N¼ H&TC 16, Block 35, to Ellenburger. This proposed test is 3 miles north by east of a recent Ordovician failure by Skelly Oil Company. Stanolind Oil & Gas Company's American Warehouse 15, Cedar Lake field, Gaines County, was drilling lime and chert at 11,699 feet. In Northwestern Gaines County, Continental Oil Company's Jones 1-A was drilling hard chert at 9450 feet. Texas Pacific Coal & Oil Company's Lane 52-A, McCamey field, was drilling without shows at 8120 feet in Simpson, topped at 7310 feet.

Pecos County: Magnolia Petroleum Company's Robertson-State 1, projected Ordovician wildcat 3⅜ miles southeast of its 7608-foot failure on the same block, topped Yates sand at 3050 feet, 179 feet high, and was drilling lime at 4735 feet after recovering sulphur water from porous lime at 8680-90 feet. Phillips Petroleum Company's Price 1 resumed drilling at 12,839 feet after repairing rig. Anderson-Prichard Oil Corporation's Weir 1, a mile west by south of its Masterson-Humble 1, which showed for gas before abandoned in granite at 4565 feet, recovered sulphur water in Ellenburger at 4625-4815 feet and will be abandoned.

Stephens County Strike Flows 70 Barrels Hour

A prolific oil strike from Mississippian sand was recorded in an almost depleted Bend lime area in north central Stephens County when Texas Pacific Coal & Oil Company's Brown 1, BBB&C 114, flowed 70 barrels of oil on a one-hour test through open tubing, after acidizing with 1000 gallons of porous lime at 4162-73 feet. Mississippian top was called at 4155 feet, about 45 feet low to the company's two Mississippi wells in Hill Pool, 1¾ miles northeast. The 100-barrel discovery allowable will be handled by the company's field gathering system for consignment to a Fort Worth refinery.

Hunter and Sohio Producing Company's Fields 1-B, also an Ellenberger project, proved dry in Palo Pinto topped at 3600 feet, and was drilling shale at 4170 feet. Merry Bros. & Perini and Alder Oil Company's Hawthorne 1, 3¼ miles north of Truby, landed pipe at 2533 feet on top of a 7-foot oil-saturated zone in Upper Hope lime, after plugging back from 2700 feet.

North Texas

Archer County Wildcat Flowing From Ellenburger

Archer County scored an Ellenburger oil strike when J. A. McCarty and J. P. Coleman's Taylor 1, Lot 13, ATNCL 17, flowed oil by heads while unloading rotary fluid into pits after drilling plugs from 5½-in at 4950 feet with spudder. Nominal saturation was logged in Ellenburger at 4937-70 feet followed by dry dolomite to 4973 feet. This strike is ⅝-mile northeast of King Oil Company's Taylor 1, which indicated small pumper after acidizing Ellenburger then plugged back for completion as a 15-barrel pumper from Mississippian at 4929-44 feet in March, 1941. The latter has settled to four barrels of oil daily. The new well topped Mississippian at 4900 feet, or 24 feet high, and is 20 feet high on Ellenburger.

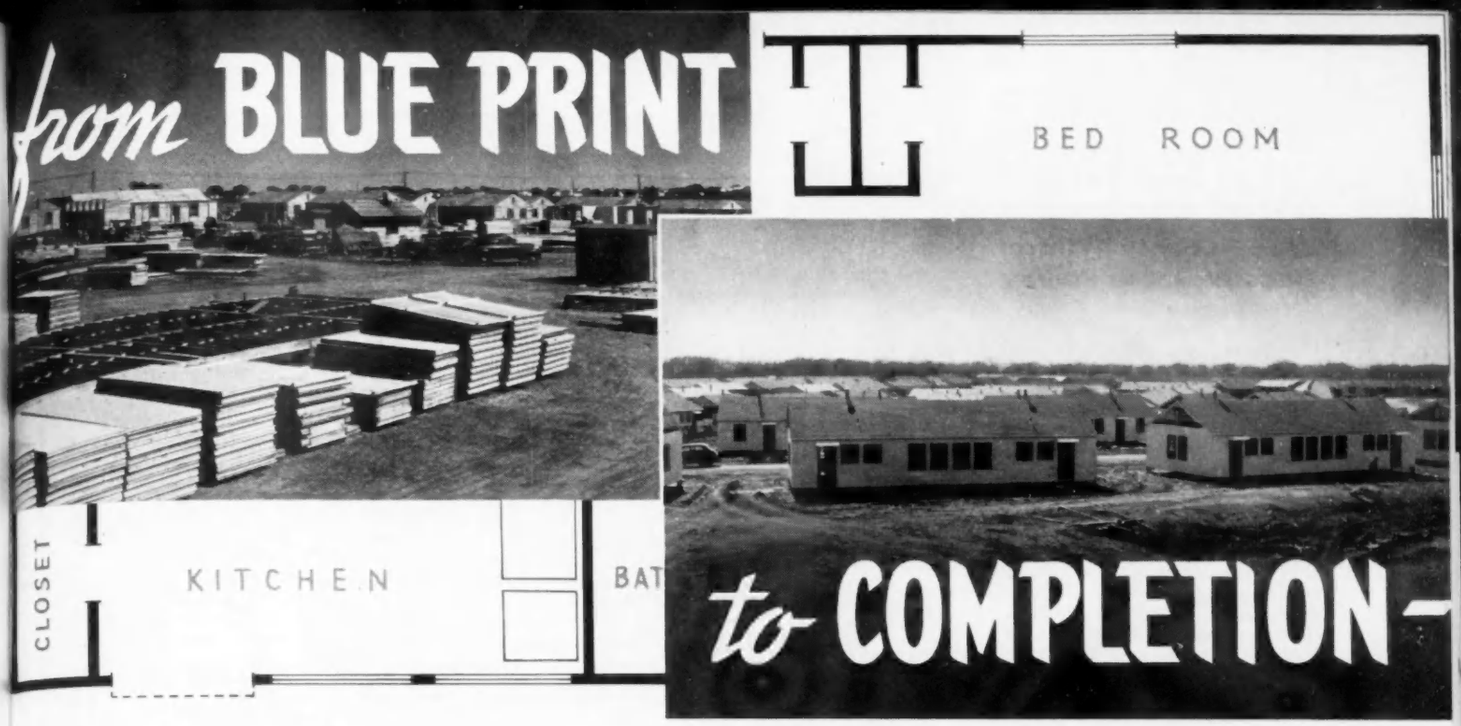
Jack County: Brazos River Gas Company's Clayton 2, Jas. Matthews Survey, A 398, is opening the southeast portion of the Bryson district for Mississippian production in testing 2,000,000 feet of gas daily after drilling plugs from 5½-inch cemented at 4767 feet to bottom of hole at 4769 feet. Deeper drilling has been delayed by split casing.

Hardeman County: Humble Oil & Refining Company's Dodson 1, three miles northwest of Chillicothe, was drilling 5520 feet on an 8500-foot depth contract with numerous sands carrying traces of oil and gas in Canyon, topped at 4245 feet, and also in Strawn. These shows failed to indicate production when tester was used at three levels, but the shows will justify more prospecting in the area.

Clay County: R. H. Dearing & Sons' Chilson 1, Block 28, confirmed 3400-foot northeast extension for Joy pool in flowing 25 barrels of oil with a small amount of rotary fluid in two hours through 18/64-inch choke after drilling plugs from 5-inch pipe at 6081 feet to 6105 feet. Top of Mississippi was called at 6050 feet, or 101 feet low to the nearest producer. Acid treatment will follow. Bridwell Oil Company's Myers 4, north outpost, is awaiting test with 5½-inch on top of Mississippian at 6059 feet, 85 feet low, with saturation to 6067 feet followed by dry lime to bottom at 6096 feet. Shell Oil Company's M. A. Wynn 1, Block 14, south of the discovery, abandoned in Ellenburger 6172-6237 feet with water in Mississippian, topped at 6085 feet.

Cooke County: Sinclair Prairie Oil Company's Laura McDaniel 1, NWc Section 80, scored a minor east extension for the Walnut Bend field in developing flow when tester was used in Winger sand at 5597 feet. Pipe has been perforated at 5575-95 feet for completion, and rig skidded north for drilling of J. M. Laura (McDaniel) 1. In southeast extension sector, the company's Art McGeorge 1 missed the upper Strawn pays, and was drilling at 5510 feet, above Winger zone. Magnolia Petroleum Company's Church 1, Section 63, entered dry Winger at 5502 feet, and was drilling at 6138 feet to explore Ellenburger.

CARL C. JOYS, JR., has joined General American Transportation Corporation to activate the plate and welding division.



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East Texas

Wood County Wildcat Finds Water in Paluxy

The western Wood County prospect of Plains Production Company on the Cox tract, near Alba, was coring water sand at 6325 feet in Paluxy topped at 6281 feet, or 85 feet high to a Paluxy failure situated immediately north of the town. Structural relief recorded by Cox 1 caused it to be rated as an outstanding bet for production in Paluxy. It is due to be carried to the Lower Trinity.

Quitman Field: Roger Lacy et al's Turner 2, situated 1300 feet north of the most northeasterly producer in the field, abandoned at 6400 feet in Paluxy water sand, topped at 6335 feet or about 90 feet low. This is the third failure for the field Chas. L. McMahon, Inc.'s Blalock 1, same area, had not reached Paluxy oil pay in coring to 6300 feet, indicating structural dip. These developments indicate that the trend of production to the northeast has run its course, although production now extends for 3½ miles along northeast to southwest trend, with maximum width of more than a mile.

Hunt County: Humble Oil & Refining Company's Rutherford 1, Smackover lime project, was drilling at 5560 feet in Lower Trinity. Stanolind Oil & Gas Company's Bickley 1, near Commerce, was drilling at 4560 feet, above Paluxy series.

Camp County: Mile southwest extension for the Pittsburg 6-well oil pool is in prospect through Harry S. Moss et al's Williams 1, Lucinda Williams Survey, having recorded favorable structural position in entering Georgetown at 4540 feet and Paluxy at 5660 feet with elevation of 406 feet. This outpost was drilling at 5690 feet. Gulf Oil Corporation is starting Barrett 1, situated between this test and the pool, which produces from the 8000-foot Travis Peak sand. Pipe-line connection was provided by Gulf Refining Company last August.

Wood County: Three short-term leases in the northeast sector of the Manziel field were given tests when Roger Lacy et al's Shamburger-Magnolia 1, Wm. Barnhill Survey, provided a surprise in flowing 140 barrels of pipe line oil daily from Paluxy perforations at 6383-96 feet. This outpost is slightly more than a mile from production. Roger Lacy et al's L. A. Rape 1 and P. G. Lake, Inc.'s Pollard 1, both on acreage farmed out by Magnolia Petroleum Company, were due to spud late last week, and the latter company set surface pipe on its Taylor 1, thus forestalling October 7 lease expiration. Sun Oil Company's Scoggin 1, west outpost, was drilling at 820 feet.

Oak Grove: Jackson-Fisher and Fields' McCarley 1-a, which opened the second Woodbine oil area for Wood County has been temporarily abandoned until an economical method is developed for producing and also the finding of a market for the 5- to 8-gravity asphalt crude. The well fills with oil to within 200 feet of surface from perforations at 5416-26 feet, and can not be swabbed because the oil starts congealing before reaching the surface.

Smith County: Skelly Oil Company's Chism 1, Travis Peak project for the Sand Flats area, was drilling at 6520 feet in Georgetown, topped at 5637 feet, or about 50 feet high to a 9852-foot junked hole 3½ miles north. Sinclair Prairie Oil Company's Rudman 1, Chapel Hill field, flowed 205 barrels of condensate and 14 barrels of acid water with 3,500,000 feet of gas on 24-hour gauge through ½-inch after multi-stage acid treatment of Pettit at 7370-7465 feet.

University Lands to Be Put Up for Leases December 3

The Board for Lease of University of Texas Lands will auction 147 tracts at a sale to be held in Austin on December 3. Included in the offering are tracts in Andrews County, Andrews and Gaines counties, Martin and Andrews counties, Martin County, Crane County, Reagan County, Reagan and Crockett counties, Crockett County, Upton County, Reagan County, Upton and Reagan counties, Hudspeth County and Cooke County.

Southwest Texas

Wells Now Testing Indicate Several New Fields

A number of wildcats are testing or have completed potential gauges this week to open new fields in the lower coastal area. Henderson Coquat has run a potential on Coquat 1, wildcat opener of a new Wilcox field in Live Oak County. The well was perforated at 7462-68 feet after logging the Wilcox at 7460-84 feet. Flow was 31 barrels of 49-gravity oil daily through a 3/16-inch choke with a gas-oil ratio of 44,500-1. Due to the high gas-oil ratio, it has not been announced whether the well has been classified as an oil or distillate producer. This discovery, which is bottomed at 8030 feet, is in the northerly northeast corner of J. Poitevent survey 1, abstract 338, 4 miles east of Oakville and 1½ miles southeast of the Gobel field discovery drilled by the same operator.

Jim Wells County: Humble Oil and Refining Company is making flow tests on Mullen 1, a wildcat 1½ miles southwest of the North Magnolia City discovery. With the new well bottomed at 5785 feet, operators found a sand at 3630-38 feet where a drill stem test recovered 2 stands and 2 joints of 23-gravity oil in 20 minutes. Bottom hole pressure was 700 pounds while flowing, and 1700 pounds shut in. This discovery is 660 feet out of the northeast corner of lot 6, Adams-Staples subdivision, Jose Pacheco grant.

In the same county Wilcox Oil and Gas Company is making tests in Price 1, a wildcat 3½ miles west of Alfred. This well was scheduled to be abandoned, but casing was set to 3380 feet and perforations made at 3240-45 feet. Location is in the south corner of a 620-acre lease, Joseph Almond survey.

Bee County: Pure Oil Company has completed a potential gauge on Williams 1, a Vicksburg sand discovery at Blanconia, in the east corner of the county. Completion was made in open hole at 4953-76 feet, the well flowing 55 barrels per day through a 10/64-inch choke. Tubing pressure was 1735 pounds, casing 735, gravity 25. The discovery is one-half mile east of Tuttle 1 gas discovery, spotted on a 198-acre lease in the Michael O'Donnell survey.

Also in Bee County Mills Bennett and Anderson-Prichard and Union Producing Company have set casing around 7760 feet in Hall 1. This well has indicated a major north extension to the West Tuleta (Wilcox) field which has only three distillate producers to date. The well is in J. W. Williamson survey.

Starr County: Sun Oil Company has completed a new sand discovery at North Sunn. The company's Montalvo 3-C flowed 166 barrels daily from perforations at 5105-10 feet. The well was drilled to 5147 feet. The well is south of older production and is one-half mile southwest of Montalvo 2-C, discovery of the 4900-foot sand section.

Jim Hogg County: The Texas Company has completed a potential on Armstrong 1, wildcat opener of a new field in the northwest part of the county. The well flowed 317 barrels daily through 10/64-inch choke with gas-oil ratio 138-1. The well was completed in the Loma Novia sand logged at 3246-55 feet. The well was drilled to 3260 feet and 5½-inch casing was set to 3242 feet. Location is in SK&K survey 99, 3 miles southwest of Yaeger field.

Texas Gulf Coast

Possible New Field Seen From Liberty County Show

Possible opening of a new field in the Devers area of Liberty County and the staking of several deep wildcat wells on the coast featured developments last week. William Helis has set casing to make first flow test in Hirsch 1, wildcat in T&NO 27. The hole is bottomed at 8264 feet with casing cemented around 8100 feet. Little information has been released on the wildcat, but it is reported that sufficient sands were logged to make a producer.

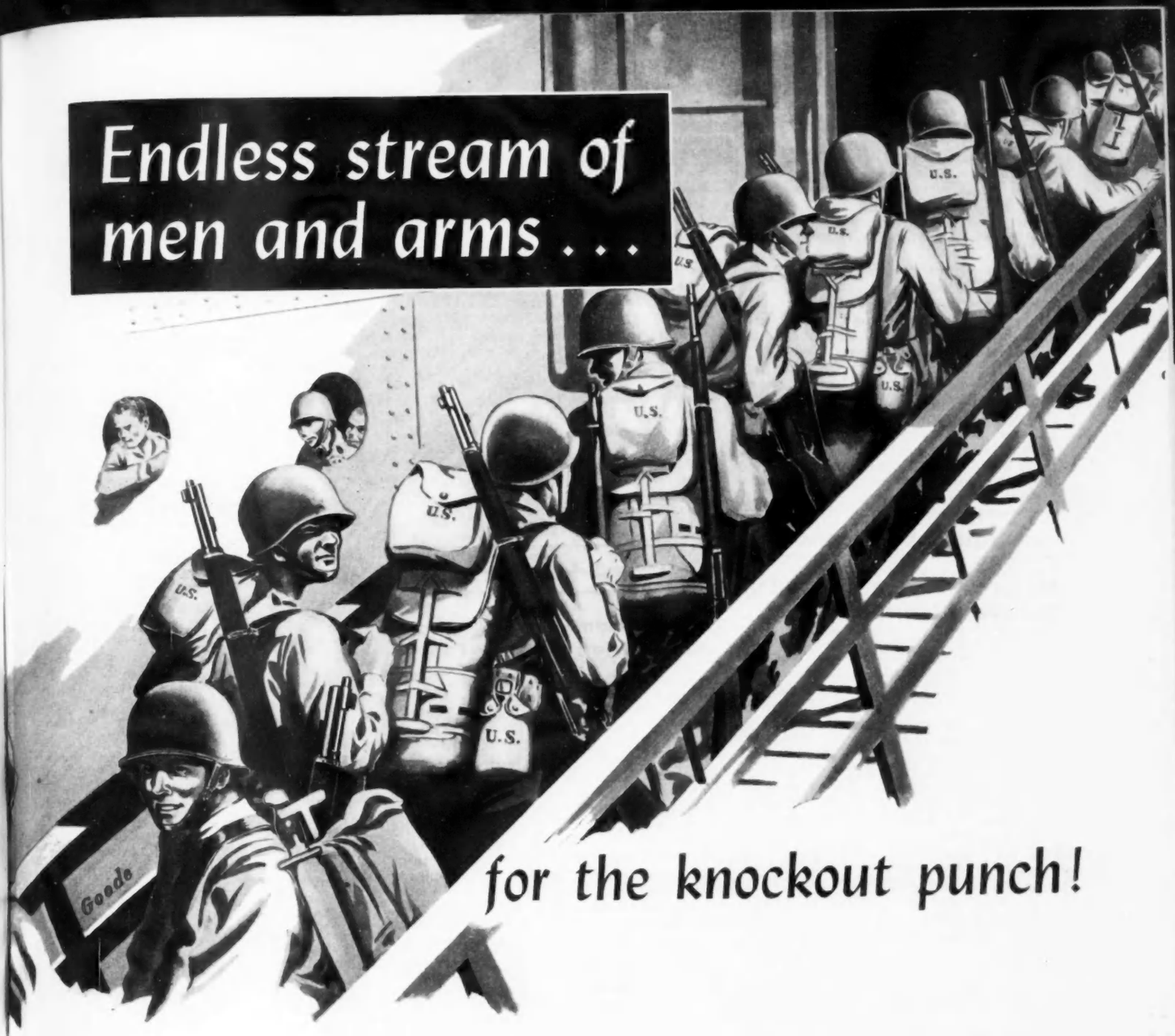
Wildcatting: Gulf Oil Corporation has announced location for a 12,000-foot wildcat in the Cleveland area of Liberty County. The well, projected to drill deep inside the Wilcox, is Kirby 22-C and is on a 4000-acre lease in the John Pleasants survey. Drilling is scheduled to start soon.

Also on the Wilcox trend but in the Rockland area of Tyler County, Humble Oil & Refining Company has staked location for an 8500-foot Wilcox well. The well is Kountz 1 and is in E. Smith survey, Abstract 792. The site is southwest of old shallow wells at Rockland. Drilling is scheduled to begin immediately.

Brazoria County: Interest is reviving in edge developments at Chocolate Bayou, deep Frio sand area. Phillips Petroleum Company has announced it will drill an 11,500-foot hole on west side of the field, location being Allen 1 on a 316-acre lease in H&W 6. The company two weeks ago staked Plummer 1 in the same area, also projected to 11,500 feet.

In the Rowan area, Rowan Drilling Company has projected Unit 1, first activity for the field in several months. The well is in Hooper & Wade survey with the proposed depth being 8575 feet. A unitization program has been

Endless stream of men and arms . . .



for the knockout punch!

It takes an endless stream of money to keep an endless stream of men and arms going to the fighting front. It takes all-out bond buying and all-out war effort to insure decisive, total, final victory.

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under way in the field and only recently was finished.

Jefferson County: Glenn H. McCarthy is continuing flow tests on McFaddin Trust 1, indicated opener of a new field in T&NO 143. With the hole bottomed at 10,148 feet a 5½-inch casing set to the 9900-foot horizon, perforations were made at 9718-20 feet but showed salt water. Another test at 9696-9718 feet flowed oil through ⅛-inch choke but later started making salt water. Another test was then made in perforations at 9693-97 feet, but results have not been announced.

North of Beaumont, Sun Oil Company is still testing Quinn 1, wildcat bottomed at 8300 feet with 5½-inch casing set near bottom. Detailed information has not been released on the test, although it is reported small sand sections were logged and that some type of production is expected.

South Louisiana

Major Extension to Reddell Discovery Indicated

Opening of a new field or a major extension to the Reddell discovery in Evangeline Parish is indicated with Continental Oil Company and Humble Oil and Refining Company testing a wildcat in the same area. The well is Pardee Lumber Company 3, 1½ miles west of Danciger's recent Haas 1 discovery. The Continental and Humble well has 6-inch casing set after drilling to 11,589 feet. Due to a complex system of faulting, the wildcat ran considerably higher than the Danciger producer, topping the Vicksburg at 7648 feet and the Cockfield at 8655 feet. It is believed the new test indicates the presence of a large structure and will possibly lead to additional drilling.

Wildcats: New wildcat locations have decreased in the coastal belt within the past 30 days while field drilling continues to hold its own. Several wildcats are now drilling while others are preparing to get under way. J. S. Abercrombie and Atlatl Royalty Company are drilling below 9200 feet in Stelly 1, proposed deep test in the Sunset area of St. Landry Parish. The well, projected to 12,000 feet, is 1 mile southeast of Charles Community 1, recently abandoned.

Amerada Petroleum Corporation has spudded Bertinot-Quebedeaux 1, projected 10,500-foot wildcat for the Arnaudville area of St. Martin Parish. The well is on a reportedly good prospect and will be watched with considerable interest. Location is in section 44-7s-5e southwest of Arnaudville townsite.

Two wildcats are drilling in Cameron Parish: Magnolia Petroleum Company is around 10,000 feet in Moore 1, on the East Black Bayou prospect in section 13-12s-12w. Pure Oil Company is drilling below 10,100 feet in State-Snake Lake 1, located in section 25-13s-3w, Snake Lake prospect. The well had been drilling in hard shale and streaks of lime.

Acadia Parish: Continental Oil Company has been testing Acadia Parish School Board 2, the second well on the north flank of Richie dome, section 16-7s-1w. A 25-foot oil sand was reported logged around 8541 feet. Total depth is 9394 feet in shale. Electrical log was run to 9277 feet and the well was then plugged back for testing.

Vermilion Parish: Humble Oil and Refining Company has set 5½-inch casing to make production tests in Louisiana Furs 3, a wildcat at Pecan Island. Total depth is 11,623 feet. This well is credited with several sands capable of producing either oil or gas-distillate.

At Whitelake in Vermilion Parish, section 16-15s-1e, Union Oil Company is preparing to dually complete Vermilion Parish School Board 7-A, at a total depth of 6447 feet with 5½-inch casing set to that level.

Calcasieu Parish: E. R. Brann and North American Consolidated Oil are continuing flow tests in Edgewood Land 2-A, their second well at Perkins. The well, section 30-7s-10w, is northwest of the discovery. Last perforations were made at 5376-87 feet. Total depth is 5430 feet with 7-inch casing set on the bottom.

Arkansas

Miller County Well Makes High-Gravity Oil

Opening of a new pool in Miller County was indicated by the showing from Arkla Oil Company's Wisinger 1, C NW SE 9-20-27. Preliminary tests indicated a potential of 132 barrels of oil per day through a 11/64-inch choke. The well is producing black oil, though the gravity is near 48°, from 5940-70 feet in hill sand. Sand had been perforated.

Commission officials said a hearing on the field will be set for the statewide meeting to be held in Magnolia, October 20.

The new strike is 2 miles from gas-distillate production in the Rodessa field, and the oil flow is accompanied by more than a million cubic feet of gas. Federal authorities, it is feared in interested local quarters, may classify the strike as a gas well, in which event development will not be permitted. In this connection it is recalled that an area opened about a year ago by The Carter Oil Company, four miles southeast of Texarkana, was classified as a gas-distillate producer and there has been no development nor production since that time. State authorities petitioned PAW to allow drilling of two wells to define the area but this permission was refused.

Michigan

Arenac County Wildcat Has Oil Flow from Dundee

Don Rayburn's State 1, N½ NW NW 33-20n-3e, Moffatt Township, Arenac County, was still under test in the Dundee after showing recoveries by flow of 45 to 75 barrels per day. Production is from Dundee topped at 2915 feet with pay from 2974 to 2979 feet and a trace of water at 2982 feet. Hole has been plugged back 3 feet preparatory to acidization.

Osceola County: Sun Oil Company's Davy C-1, N½ NW NW 29-18n-8w, mile west of the Evart pool, missed in the original Dundee objective, topped at 3814 feet, and is now being deepened to 5200 feet to test Richfield.

Ingham County: Voorhees Drilling Company logged Trenton lime at 5752 feet on Glasser 1, Section 14-3n-1e, first key deep objective of the test. Plans call for drilling to 6700 feet or deeper.

Mecosta County: Mogul Oil Company's Wicklund 1, S½ NW SW 4-16n-7w, Fork field, averaged 6½ barrels per hour natural from Dundee lime-dolomite at 3812½ feet, to extend the field a quarter mile east and into Section 4.

Newaygo County: Pure Oil Company has started deepening work on Goodrich 1, E½ SE SW 5-14n-11w, test originally completed last spring at 1180 feet in Michigan Stray for 10,500,000 cubic feet of gas as a gas discovery. It will be carried to 3900 feet to test Dundee and Monroe.

California

Drilling Rush Presents Manpower Problem

California field activity figures are breaking records of years standing, being now more than double those of last October. This month began with a total of all drilling operations of 566, of which 348 were wells drilling or rigged for immediate start. At this time a year ago average total of active wells ran about 150.

Latest Division of Oil and Gas reports of new locations list 147 new wells filed in the 28 days ending September 25, raising the new-well total for the year to 1217, as against 527 for the first 9 months of 1942. Scout reports at the same date showed 212 locations, for which notices had been previously filed, waiting to be drilled.

Already it is obvious that the demands upon manpower, drilling equipment and materials such totals impose will exhaust all available supply. The problem thus posed, in view of the ever-climbing demand for more and more California oil with which to meet war and essential industrial needs on the Pacific Coast, will be as great a headache for the war agencies as for the operators themselves.

Fresno County: General Petroleum Corporation's semi-wildcat in the Helm area, Noble F-4-5, 5-17-18, with promising shows in lower levels, is being readied for production test from plugged bottom of 8038 feet.

Kern County: Reported shows in two shallow wildcats, C.C.M.O.'s 1 and 2, respectively in 17-24-18 and 20-24-18, give promise of a new pool discovery for the West Slope area, not far from Pyramid Hills field. No. 1 is bottomed at 962 feet and No. 2 at 965 feet. Production tests are held up pending construction of electric power lines to the area.

Richfield Oil Corporation has resumed drilling in Belridge 4, 21-27-20, a test of North Belridge deep zone. Present depth is 8509 feet.

Kings County: Middle Dome at Kettleman Hills is scheduled for an Eocene test as a result of arrangements effected by Standard Oil Company and Bolsa Chica Oil Corporation, holders of large acreage there.

Los Angeles County: A new wildcat play involving 1500 acres in the Angouras area, near Calabasas village, is being launched by British American Oil Producing Company. Tentatively selected site for a first well is in 25-1-18.

United States Well Completions

ARKANSAS

Columbia County—Smart: McAlester's Green 1, 11-15s-20w, to be placed on pump, Tokio, 2500 ft.

Crow & O'Farrell's Hall 2, 11-15s-20w, flow 200 bbls, Tokio, 2500 ft.

Columbia County—Schuler: Lion Oil Ref. Co.'s Dennis Kellsey 1, 19-18s-17w, Cotton Valley tested dry, abnd 7000 ft.

CALIFORNIA

Fresno County—Coalinga, Old Field: Standard's 91-13D, sw ne sw 13-20-14, pump 32 bbls oil, 6 water, 353-ft perf 1200 ft, Kreyenhagen 1200 ft, td 1205 ft.

Texas Co.'s B-15, ne se 12-20-14, pump all circulated oil, 245-ft perf 1383 ft, td 1410 ft.

Kern County—Belridge South: Belridge Oil Co.'s 75-34, nw ne se 34-28-21, pump 40 bbls 11.6-gr, perf 1150 ft, td 1150 ft.

General Pet. Corp.'s 25-2, ne ne nw 2-29-21, pump 52 bbls 13.5-gr, perf 610-809, 834-84, 922-1038 ft, first oil sand 617 ft, td 1040 ft.

Kern County—Cymric; Honolulu Oil Corp.'s Fitzgerald 61-26, ne nw ne 26-29-21, pump 120 bbls 12.8-gr, perf 1456-1437, 1399-1362 ft, first oil sand 1371 ft, td 1495 ft, pd 1456 ft.

Kern County—Kern Front: Richfield's Kern 4, nw ne ne 22-28-27, pump 85 bbls 14.6-gr oil, 50 water, 290-ft perf 2297 ft, td 2300 ft.

Standard's 59, nw ne sw 15-28-27, pump 62 bbls 11.9-gr oil, 35 water, 173-ft perf 2398 ft, td 2400 ft.

Kern County — Midway-Sunset: Richfield's Fairfield 18, ne sw nw 11-31-22, pump 141 bbls 15.1-gr, 52-ft perf 1409 ft, td 1614 ft, pd 1410 ft.

Kern County—Poso Creek-Premier: Standard's 5-21, ne nw nw 21-28-27, pump 189 bbls 13.2-gr, 100-ft perf 2925 ft, td 2930 ft.

Kern County—Round Mountain: Crestmont Oil Co.'s Coffee 4, ne se nw 8-28-29, pump 110 bbls 17-gr, 46-ft perf 1384 ft, td 1384 ft.

Shell's Jewett 1-18, ne ne sw 29-28-29, pump 168 bbls oil, 252 water, 234-ft perf 1644 ft, td 1670 ft.

Los Angeles County — Brea-Olinda: Shell's Orange 22, 926 ft n, 3539 ft w sec of lse, pump 33 bbls oil, 300 water, 734-ft perf 5347 ft, td 5350 ft.

Los Angeles County—Del Valle: (Old well deepened) R. E. Havenstrite, Operator's Liebhart 1, sw nw sw 15-4-17, flow no est, perf 7591-7668 and 7375 ft, Tar sand 5910 ft, Sherman 5940 ft, Del Valle zone 6645 ft, otd 7255 ft, td 8519 ft.

Los Angeles County — Montebello: Standard's Baldwin 101, nw se ne 1-2-12, pump 48 bbls 24.3-gr oil, 153 water, perf 3468-3420, 3312-3140 ft, td 3468 ft.

Los Angeles County — Newhall-Potrero: Barnsdall's R.S.F. 39, 7149 ft s, 10,167 ft e of cor "J," flow 326 bbls 33.7-gr oil, 500,000 gas, 48/64-in, 110/0, 307-ft perf 7146 ft, oil sand 7091 ft, td 7148 ft.

Los Angeles County—Torrance: Texas Co.'s Redondo Improvement Co. 8, 396 ft sly along wly bdry Torrance fr c/l Beryl St thence 758 ft ely at r/a, pump 108 bbls, 330-ft perf 3629 ft, td 3629 ft.

Los Angeles County — Wilmington: Long Beach Oil Dev. Co.'s "W" 58, 782 ft nely along n/l Seaside Blvd fr e side 27th Ave, thence 1994 sely at r/a, pump 214 bbls 15.4-gr oil, 67,000 gas, perf 3011-3390 ft, td 3394 ft.

Long Beach Oil Dev. Co.'s "Z" 9, 716 ft swly along n/l Seaside Blvd fr w side Pico Ave, pump 170 bbls 18.9-gr, perf 2530-2923 ft, td 2926 ft.

Union Pacific's 224, 6530 ft s, 1343 ft w c/ls Ford and Anaheim Blvds, 4-5-13, pump 184 bbls 15.5-gr, perf 2615-2729 ft, td 2737 ft.

Orange County—Huntington Beach: Signal Oil & Gas Co.'s Bolsa 41-A, 1511 ft n, 1760 ft w swc Plot "C" Bolsa Lse, flow 420 bbls, 29/64-in perf 3472-4350 ft, td 4383 ft.

Santa Barbara County—Santa Maria Valley: Union Oil Co.'s Battles 7, nw ne ne 25-10-34, pump 397 bbls 15.2-gr, 1537 ft perf 4105 ft, td 4107 ft.

Ventura County—Ventura Avenue: (Old well deepened) British-American Oil Co.'s Hartmann 9, 674 ft n, 60 ft w c/l No. 11, flow est 100 bbls, 765-ft perf 9624 ft, and cp'd 8861 ft, otd 8764 ft, td 9624 ft.

General Pet. Corp.'s Barnard 27, 277 ft s, 1155 ft w c/l No. 11, flow 1872 bbls 30.2-gr oil, 500,000 gas, 48/64-in 350/900 lbs, 825-ft perf 9783 ft, td 9786 ft.

Ventura County—Eureka Canyon: El Rika Oil Co.'s 4, 450 ft n, 4120 ft e nwc Union's fee ppty, pump 2 bbls oil, 18 water, td 428 ft.

CALIFORNIA WILDCATS

Kern County—Failures: Kohlbush & Lyons' U. S. 1, sw sw sw 6-29-22 Belridge South area, gray sand, abnd 1509 ft.

Universal Consolidated Oil Co.'s Sauer Dough 1, ne sw sw 23-29-21, Cymric area, oil sand 1065 ft, perf 1196 ft, abnd 1198 ft.

Trico Oil & Gas Co.'s Coffee 15, se ne nw 8-28-29, Round Mountain area, Vedder 1150 ft, abnd 1208 ft.

San Joaquin County — Failure: Amerada's Thomson & Folger 1, c ne nw 3-4-6, Lodi area, abnd 3500 ft.

Ventura County — Failure: Allied Properties' Camarillo 2, ne se nw 4-1-20, Conejo area, abnd 123 ft.

Yolo County—Failures: Shell's Glide 1, ne sw sw 15-7-3, Dixon area, abnd 6696 ft.

Texas Co.'s Winchester V1 1, sw nw se 20-7-4, Winchester Lake area, abnd 5416 ft.

ILLINOIS

Clay County: W. C. McBride's Phillips 1, se nw sw 2-3n-7e, Cypress 2603 ft, 88 bbls, 2605 ft.

Texas Co.'s A. Rodgers 2, ne ne sw 14-5n-5e, 15 bbls, Aux V 2360 ft.

Texas Co.'s A. Rodgers 3, sw ne sw 14-5n-5e, 35 bbls, Aux V 2345-57 ft, 2357 ft.

Texas Co.'s A. L. Kidwell 1 (wo:pb), 63 bbls, Aux V 2342-60 ft, pb 2400 ft, 2488 ft.

Overling and Sohio's Behrens 1, ne ne ne 25-5n-6e, abnd 2912 ft.

Edwards County: Ryan Oil Co. et al's E. Moats 1, e½ nw ne 9-1n-10e, 966 bbls, McCl 3258 ft, 3259 ft.

Franklin County: E. S. Adkins' Peabody Coal Co. 31, 40 ft s of c sw sw sw 18-7s-3e, 105 bbls, Tar Springs 2080 ft, 2080 ft.

E. S. Adkins' LeRoy Clayton "S" 3, se sw sw 30-7s-3e, abnd 2160 ft.

Hamilton County: Pure's Union Central Life Ins. 2, nw se se 36-5s-6e, 22 bbls, Cypress 2738, 3085 ft.

C. E. Polites' C. Harrington 1 (wo), sw ne se 11-6s-6e, abnd 3248 ft.

Texas Co.'s J. C. Hall "B" 10 (wo), se sw nw 17-6s-7e, 65 bbls, Tar Springs and Cypress 2358-91 ft, 2763 ft.

Texas Co.'s J. C. Hall "B" 4 (wo), nw ne se 18-6s-7e, 223 bbls, Tar Springs and Aux V 2371 ft, 3036 ft.

Jefferson County: Texas Co.'s Steckler 3, se ne se 8-1s-12w, 32 bbls, 2010 ft.

Superior Oil Co.'s E. & C. Crow Unit 6, ne sw sw 4-1s-12w, 40 bbls, Biehl 1465 ft, Cypress 2004 ft, McCl 2338 ft, 2355 ft.

Superior Oil Co.'s E. A. Viehman 10, ne sw sw 9-1s-12w, 900 bbls, Cypress 1996-2011 ft, and McCl 2330 ft, 2330 ft.

M. & P. Oil Co.'s G. S. Couch Comm. 5, ne sw ne 16-1s-12w, Cypress 2007 ft, 2007 ft.

Continental's A. E. Shultz "A" 7 (dd), sw se se 8-2s-13w, 13 bbls, Cypress and Benoist 2578 ft, 2578 ft.

N. V. Duncan, Inc.'s B. Metcalf 4, se nw se 31-3s-14w, 20 bbls, Aux V 2930 ft, 3041 ft.

Madison County: Sinclair-Wyoming's E. W. Ellis 4, ne se nw 27-3n-6w, 48 bbls, Trenton 2332 ft, 2332 ft.

Marion County: Texas Co.'s F. Shanafelt 12, se se se 9-2n-2e, 84 bbls, 1892 ft.

St. Louis County: Olds Oil Co.'s H. Stillwell 1, sw sw se 21-1n-12w, abnd 2382 ft.

Nye & Miller's H. Clark 1, ne ne se 3-2n-12w, 10 bbls, Penn 756 ft and 960 ft, 962 ft.

Smith & Nye's L. Ridgley 2, ne se ne 11-2n-12w, 10 bbls, 1269 ft.

Wayne County: Pure's J. M. Manahan 1, sw se ne 17-1s-6e, abnd 3187 ft.

Pure's L. A. Manahan 2, sw sw ne 17-1s-6e, 88 bbls, Aux V 3060 ft.

Deep Rock's Young Comm. 1, 150 ft e of c nw ne 32-1s-7e, McCl 3261 ft, 176 bbls, 3262 ft.

Deep Rock's Farris 1, c sw se 7-1s-6e, 50 bbls, McCl 3289 ft, 3292 ft.

Deep Rock's C. K. Bothwell 1, se nw 13-2s-6e, 42 bbls, McCl 3320 ft, 3324 ft.

Ohio Fuel Supply Co.'s B. S. Nussbaum 2, ne se 14-2s-6e, abnd 3382 ft.

Texas Co.'s B. Lyons 2 (wo), se se se 32-2s-7e, 12 bbls, Aux V and McCl 3264-3342 ft.

Robinson & Puckett's I. Puckett 1, se se nw 17-2s-8e, abnd 3362 ft.

Warren Wright et al's Stine Cons. 1, e½ ne nw 17-1n-7e, abnd 3243 ft.

White County: Sam Gilpin's L. Kistner 1, se se nw 7-6s-9e, abnd 3111 ft.

ILLINOIS WILDCATS

Coles County—Failure: A. M. Myers' C. M. Flenner 1, sw ne sw 24-12n-10e, abnd 633 ft.

Jefferson County — Failure: Skelly's Roy Wilson 1, ne se sw 11-2s-4e, abnd 3112 ft.

Richland County — Oil Discovery: R. B. Martin et al's Charles Boyd 1, s½ se sw 26-2n-10e, 296 bbls, McCl 3260 ft.

Union County — Failure: Little Egypt Oil Co.'s Basler 1, ne se se 35-11s-1w, abnd 2160 ft.

Wells Completed in the United States in Week Ended October 9, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama													2	3
Arizona													4	2
Arkansas	1			1	2						2	4	159	181
California	22				22	2			7	7	31	24	1,174	599
Colorado													21	12
Florida													1	
Georgia													1	2
Illinois	24			9	33		1		3	4	37	50	1,387	1,648
Indiana	3	1			4						4	14	211	303
Kansas	15			11	26			1	3	4	30	53	1,322	1,290
Kentucky	2			5	7				4	4	11	21	302	113
Louisiana	2				2				3	3	5	8	448	756
North Louisiana									3	3	3	2	186	
South Louisiana	2				2						2	6	262	
Michigan	4	2		5	11				8	8	19	10	459	544
Mississippi													34	90
Missouri									4	4	4		21	24
Montana	5			2	7				1	1	8		170	163
Nebraska														28
New Mexico	6			1	7				1	1	8	4	208	321
New York	15		10		25						25	25	912	964
Ohio	6	2		3	11						11	5	647	872
Oklahoma	11	2	3	10	26		1		10	11	37	33	1,097	1,131
Pennsylvania	31	7	17	3	58						58	54	2,147	3,190
Tennessee													8	8
Texas	46			17	63	5	4	1	10	15	83	96	3,238	4,387
E. T. Bor. Co.'s													16	
E. Texas. Field													5	
Rest of E. Texas	2				2				1	1	3	4	178	
North Texas	15			10	25	2	2			2	29	3	801	
W. Central Tex.	2			4	6	1			3	3	10	6	296	
West Texas	17				17	2		1	2	3	22	18	716	
Tex. Panhandle	2				2						2	3	153	
G. Coast, Upper	1			2	3				1	1	4	4	248	
G. Coast, Lower	3				3		1		2	3	6	11	486	
Southwest Texas	4			1	5		1		1	2	7	15	294	
S. Central Texas													45	
West Virginia		14		3	17						17	17	510	586
Wyoming	9			1	10						10		105	78
Total U.S.	202	28	30	71	331	7	6	2	54	62	400	418	14,586	17,295

* Includes distillate wells. † Includes salt water disposal wells.

INDIANA

Gibson County: Superior Oil Co.'s Elmer Thompson 1, nw sw ne 25-2s-12w, 104 bbls, Cypress 1960-77 ft and McCl 2274 ft, 2320 ft. comp.

Jay County: F. G. Turner's Fred Turner 2, ne ne ne 4-24n-13e, Trenton 981-97 ft, 10 bbls, 997 ft.

Rush County: Eastern Ind. Gas Co.'s S. A. Liddle 2, near c nw 1-13n-9e, 75 gas Trenton, 862 ft.

Spencer County: Dameron-Gary & Savage's A. Frank 2, nw ne sw 36-7s-7w, 10 bbls, 922½ ft.

KANSAS

Barber County—Bear Creek: Great Lakes Carbon's Welch 2, n nw nw 31-31s-15w, Weathered Miss 4912 ft, abnd 4975 ft.

Barton County — Ainsworth: Black-Marshall's Ainsworth 2, nw ne sw 33-16s-13w, Arb. 3395 ft, pb to 3404 ft, pump 690 bbls, 3406 ft comp.

Barton County — Kraft Prusa: Herndon Drlg.'s Disgue 1, ne se ne 17-17s-11w, Arb. 3294 ft, pump 35 bbls, td 3318 ft.

Butler County—El Dorado: Texas Co.'s L. W. Robinson 26, sw se nw 17-25s-5e, pump 77 bbls, td 2593 ft.

Cowley County—Mahannah: Adair & Norton's Dunne 1, se ne se 1-30s-7e, Miss lime 2753 ft, fill 1000 ft wtr, abnd 2822 ft.

Cowley County — David: Northern Ordnance's King 1, se nw nw 2-31s-4e, Arb. 3555 ft, abnd 3596 ft.

Cowley County—Graham: I. W. Murfin et al's Wallace 1, ne se ne 4-33s-3e, Miss lime 3222 ft, abnd 3252 ft.

Ellis County—Walter: Hollow et al's Benefiel B 1, ne sw sw 3-12s-18w, Conglomerate 3770 ft, abnd 3838 ft.

Ellis County—Un-named: Coralena Oil Co.'s Reeder 1, c nw nw 22-12s-19w, Lansing 3520 ft, Erosive Arb. 3864 ft, abnd 3889 ft.

Ellis County—Ellis: Darby's Auber A 3, w nw sw 31-12s-20w, Arb. 3858 ft, pump 235 bbls, 3872 ft.

Marion County—Lost Springs: Derby & Carey's Riffel 2, sw nw sw 10-17s-4e, Lans. 2330 ft, pump 100 bbls, 2351 ft.

Pratt County—Frisbie: Texas Co.'s J. M. Frisbie 2, c nw se 5-26s-13w, pb to 3896 ft, abnd 4040 ft.

Pratt County—N. Iuka: Texas Co.'s R. D. Petrowsky 4, sw ne nw 30-26s-12w, pump 660 bbls, 4343½ ft.

Pratt County — N. Iuka-Carmi: British American's Petrowsky 4, sw ne ne 30-26s-12w, Arb. 4291 ft, 1300 gal acid, pump 133 bbls, 4308 ft.

Russell County—Krug: Texas Co.'s M. Rusch 2, c nw sw 9-14s-14w, pump 123 bbls, 3086 ft.

Russell County — Williamson: Coralena's Krug 3, sw sw se 4-14s-14w, Lans. 3025 ft, 2000 gal acid, pump 227 bbls, td 3060 ft.

Russell County: Coralena's Albert Krug 2, sw se ne 9-14s-14w, Lans. 3016 ft, 1000 gal acid, pump 1025 bbls, td 3042 ft.

Russell County—Greenvale: Jones & Shelbourne's Veji, s ne sw 5-15s-12w, Arb. 3288 ft, pump 104 bbls, 3290 ft.

Russell County — Trapp: Stanolind's John Letzch "B" 5, s nw sw 4-15s-13w, Lans. 3019 ft, pb 3101 ft, pump 12 bbls, td 3321 ft.

Russell County: Helmerich & Payne's Sylva 4, c nw nw 20-15s-13w, Arb. 3233 ft, 2400 gal acid, pump 243 bbls, 3236 ft.

Russell County—Selens: Hartman & Blair's Sellens 3, c nw nw 26-15s-13w, Basal 3312 ft, pump 60 bbls, 3323 ft.

Russell County—Trapp: Pryor & Lockhart's Flegler "B" 1, s ne nw 11-15s-14w, Arb. 3214 ft, pump 825 bbls, 3228 ft.

Russell County—Strecker: Ohio et al's Bender 1, s sw se 21-15s-14w, Lans. 3032 ft, abnd 3329 ft.

Saline County—Hunter: Phil-Han's Kedden 1, ne ne se 20-16s-1w, T. Chat. 2651, abnd 2680 ft.

Sedgwick County — Eastborough: Deep Rock's John Morley 2, sw sw sw 30-27s-2e, Viola 3281 ft, fill 900 ft wtr, abnd 3290 ft.

Stafford County—Rothgram: Atlantic Ref.'s Hiss "B" 2, e ne sw 10-21s-13w, Lans. 3293 ft, Arb. 3585 ft, pb 3486 ft, abnd 3780 ft.

KANSAS WILDCATS

Leavenworth County—Gas: Roxan Oil Co.'s Reiger East, 1, c e½ nw ne, 29-11s-22e, sand 795-805 ft, 25,000 gas, td 805 ft.

Rice County—Failure: C. L. Carlock's Bailey 1, c nw ne 36-21s-6w, Lans. 2898 ft, Detrital zone 3460 ft, Miss. 3639 ft, abnd 3541 ft.

Russell County—Failure: Lion's Stumpf 1, nw ne ne 36-14w-11w, Lans 2815 ft, Eros Simp 3153 ft, Arb 3176 ft, abnd 3237 ft.

Stafford County—Failure: Dasa Oil Co.'s Newell 1, se nw ne 33-24s-11w, Simp 4006 ft, Arb 4090 ft, abnd 4112 ft.

KENTUCKY

Henderson County: Carter Oil's Darton 1, 24-O-23, abnd 2348 ft.

Sohio's Otho Royste (77) A 1, 24-O-24, abnd 2650 ft.

C. D. Burbank's Fee 1, 8-P-21, abnd 2755 ft.

Sohio's Minnie Phillips 1, 21-P-22, abnd 2705 ft.

Cal Star Pet. Co.'s Hoagland 2, 20-Q-26, abnd 2200 ft.

Union County: Sun Oil Co.'s Tapp 2, 10-O-20, McCl 2484-98 and 2531 ft, 400 bbls, 2531 ft.

Carter Oil's Norris Powell 1, 4-O-21, Walt 1754-56 ft, 14 bbls, 1756 ft.

KENTUCKY WILDCATS

Daviess County—Failures: Barnett & Riley's W. L. Adkins 1, 4-P-28, abnd 1819 ft.

Carl Robinson et al's T. J. Newsom, 17-P-31, abnd 1535 ft.

Logan County — Failure: Geo. Earnhardt's Suddeth 1, 25-G-32, abnd 634 ft.

Rowan County—Failure: Gulf's R. Pickin 1, c sl ne nw 21-T-74, abnd 1545 ft.

NORTH LOUISIANA WILDCATS

Clairborne Parish—Failure: E. C. Johnston's Tims 1, sw 12-21n-7w, abnd 6009 ft.

Bossier Parish—Failure: Sneed and Maynard's Thigpen-Herold 1, ne 15-20n-13w, abnd 3300 ft.

Caddo Parish — Failure: H. L. Carnahan's Glassell North 1, nw sw 26-20n-15w, tested salt water 2797 ft.

SOUTH LOUISIANA

Calcasieu Parish—Vinton: Union Oil Co.'s Gray 13-G, 331 ft w 990 ft s nec 33-10s-12w, 5½-in 5540 ft, perf 5388-5440 ft, 143 bbls, ⅛-in, td 5653 ft.

Evangeline Parish—Pine Prairie: Gulf's Gournay-Schlicher-Thomas 1, 1163 ft w alg nl fr nec nw ne 2-4s-1w, 5½-in 7939 ft, perf 7875-7925 ft, 253 bbls, 5/32-in, td 8479 ft.

MICHIGAN

Allegan County—Fillmore: E. W. Leeder's Klingenberg 1, se sw se 2-4n-15w, Traverse lime, abnd 1574 ft.

J. W. Lang, Inc.'s Dozeman 2, se nw ne 11-4n-15w, Traverse lime, abnd 1588 ft.

Allegan County—Otsego: Robt. W. Patrick's Hare 1, se ne sw 20-1n-12w, Traverse lime, abnd 1533 ft.

Bay County — Kawkawlin: Ervin Major's Bedell 1, s½ se se 32-15n-4e, abnd 1712 ft.

Clare County—Hatton: C. W. Teater's Ranch 1, se ne nw 31-18n-4w, Dundee lime, abnd 3955 ft.

Clare County — Cranberry Lake: Taggart Bros. Co.'s S23, c ne 8-20n-5w, Stray sand, 1,001,000 gas, td 1332 ft.

Mecosta County — Fork: Mogul Oil Co.'s Wicklund 1, s½ nw sw 4-16n-7w, Dundee lime, flow 216 bbls, td 3813 ft.

Smith Pet. Co.'s Taylor 1, s½ nw se 8-16n-7w, Dundee lime, flow 167 bbls, td 3833 ft.

Missaukee County—Cranberry Lake: Taggart Bros. Co.'s S22, c se 36-21n-6w, Stray sand, dry, td 1331 ft.

Newaygo County—Woodville: Ohio Oil Co.'s Gas Unit 7, c sw 20-15n-11w, Stray sand, 1,800,000 gas, td 1195 ft.

Osceola County—Cedar. Sun Oil Co.'s Davy

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Bl, c nw nw 34-18n-9w, Dundee lime, flow 161 bbls, td 3778 ft.

Van Buren County—Geneva: Socony Vacuum Oil Co.'s Varnum 2, sw sw sw 24-1s-16w, Traverse lime, flow 105 bbls, td 1070 ft.

MICHIGAN WILDCATS

Allegan County — Failure: Muskegon Dev. Co.'s Arndt 1, n½ sw sw 20-3n-13w, Traverse 1672 ft, abnd 1770 ft.

Clare County—Failure: Union Drilling Co.'s Davison 1, n½ ne ne 20-17n-5w, Dundee 4095 ft, abnd 4205 ft.

Kent County—Failure: Grimes and Fortney's Herrick 1, sw sw sw 9-5n-10w, Traverse 1892 ft, abnd 2037 ft.

Mecosta County—Failure: Gordon Oil Co.'s Mich. Trust Co. 1, s½ se sw 36-16n-9w, Dundee 3694 ft, abnd 3830 ft.

Osceola County—Failure: Gordon Oil Co.'s State A1, e½ sw se 31-19n-8w, Marshall test, abnd. 1900 ft.

Ottawa County—Failure: S. L. McCall's Timmerman 1, nw ne ne 26-7n-15w, Traverse 1589 ft, abnd 1700 ft.

Roscommon County—Failure: Sun Oil Co.'s State A1, n½ nw se 20-22n-2w, Dundee 3729 ft, abnd 3858 ft.

Van Buren County — Failure: Harris Oil Co.'s Jablonsky 1, sw se sw 13-2s-16w, Traverse, abnd 1362 ft.

MONTANA

Glacier County—Cut Bank: P. B. Anderson's Fee 1, se ne sw 31-32n-5w, swab 55 bbls, Lower Cut Bank 3037-53 ft, 7-in 3017 ft, td 3058 ft.

Glacier Production Co.'s Winkler 3, c sw sw 27-33n-5w, swab 77 bbls, Lower Cut Bank 2928-45 ft, shot 80 qts, 7-in 2911 ft, td 2948 ft.

Santa Rita Oil & Gas Co.'s Tribal 20, c ne nw 10-35n-6w, so 3010 ft, water 3030 ft, Cut Bank 2960-3035 ft, abnd 3065 ft.

Texas Co.'s Govt. 2, c nw se 18-32n-5w, swab 116 bbls, Lower Cut Bank 2764-79 ft, shot 80 qts, 7-in 2725 ft, td 2784 ft.

Toole County—Kevin-Sunburst: Coolidge & Coolidge's Wait 6, ne sw se 13-35n-2w, pump 75 bbls, acid 500 gals, Ellis-Madison 1542 ft, td 1546 ft.

E. O. Reickhoff's Bannister 1-X, sw se sw 35-37n-3w, Sunburst 1830-45 ft, abnd 2091 ft.

Henry Vanderpas Zachor-5 3, sw ne sw 20-35n-1w, pump 30 bbls, 1643 ft.

Toole County—Aloe Nose: Northern Ordnance, Inc.'s Murray 1, c nw se 6-32-n-2w, abnd 1698 ft.

NEW MEXICO

Eddy County: Bay Pet. Corp. and Penn Surgical Co.'s H. Yates 1, ne nw sw 5-18s-29e, flow 70 bbls 2-in, shot 210 qts 2658-2700 ft.

Harris Eastham, Jr. et al's Colglazier 1, c nw se 20-20s-30e, pump 56 bbls, acid 1500 gals, 1502-1600 ft.

Dixon & Yates Oil Co.'s Day 3, c sw se 12-18s-29e, flow 96 bbls, ½-in, shot 390 qts 2680-2773 ft, td 3037 ft, pb 2773 ft.

P. B. English et al's State 1, 1980 ft snl, 515 ft ewl 30-17s-31e, swab 25 bbls, shot 200 qts 3205-3305 ft, td 3336 ft, pb 3305 ft.

H. W. Martin et al's Gates 5, c nw nw 23-18s-30e, abnd 3301 ft.

Repollo Oil Co.'s Keel 1-B, 554 ft out nwc 6-17s-31e, flow 15 bbls, 2-in, acid 1500 gals, shot 340 qts 3025-3135 ft, td 3549 ft, pb 3135 ft.

Geo. Turner et al's Wills 6, c ne nw 13-20s-28e, pump 25 bbls, shot 40 qts 830-955 ft.

NORTHWEST NEW MEXICO WILDCAT

Rio Arriba—El Vado: Phillips' Unit 1, nw ne sw 3-27n-2e, Dakota 370 ft, Todilto 1050 ft, Triassic 1825 ft, abnd 2009 ft.

OKLAHOMA

Bryan County—Cumberland: Pure's Little 215 1, se sw nw 21-5s-7e, McLish 5625 ft, abnd 6070 ft.

Caddo County—West Cement: Anderson-Prichard's Hayes 1, cen s½ se se 35-6n-10w, Madrano 5488 ft, 30/64-in, flow 268 bbls, td 5544 ft.

Carter County—Healdton: Sinclair's Mullen 21, c w½ e½ e½ 4-4s-3w, completed for gas input well, td 1028 ft.

Comanche County — Fort Sill: May E. Spencer's 5, se nw nw 8-3n-10w, 250,000 gas, td 1228 ft.

May E. Spencer's 6, sw sw nw 8-3n-10w, flow 52.50 bbls, td 1228 ft.

M. E. Spencer's 7, ne sw nw 8-3n-10w, pb 1090 ft, pump 25 bbls, td 1222 ft.

Samuel Mitchell's 1, sw ne nw 10-3n-10w, abnd 6473 ft.

Creek County—Glenn: Gulf's E. Berryhill 53, c w½ w½ 9-17n-12e, input well, Glenn 1568 ft, td 1751 ft.

Creek County: Sinclair Prairie's J. F. Berryhill 61, sw se ne 16-17n-12e, Glenn 1402 ft, repressure well, 1577 ft.

Sinclair Prairie's J. F. Berryhill 62, se se ne 16-17n-12e, Glenn 1562 ft, shot 140 qts, pump 2 bbls, 1563 ft.

Creek County—Cushing: Sinclair Prairie's Wacoche 10, c se ne 20-18n-7e, Tucker 2621 ft pay 2690 ft, pump 3 bbls, 700 bbls wtr, td 2690 ft.

Garfield County—Hillsdale: Champlin's Paul Boehn 1, sw ne ne 4-24n-8w, 2nd Wilcox 6675 ft, abnd 6740 ft.

Garvin County—Pauls Valley: Cities Service's Wimberly "A" 1, se sw nw 25-4n-1w, Bromide 4025 ft, flow 630 bbls, 1½-in, td 4076 ft.

Lincoln County — N. Agra: Danciger's C. Estes, c se se 30-17n-4e, Wilcox 4453 ft, 2nd Wilcox 4495 ft, 2,000,000 gas, abnd 4535 ft.

Marshall County—Cumberland: Pure's Rowland 214, sw nw ne 19-5s-7e, McLish 5621 ft, flow 672 bbls, 6058 ft.

Pure's Little 109 5, se ne nw 20-5s-7e, McLish 5595 ft, sand 6011 ft, flow 888 bbls, 564,000 gas, td 6054 ft.

Okfuskee County — Weleetka: Adelson et al's Public Service 2, c se nw 22-10n-11e, td 1165 ft.

Okfuskee County — Mid-West: Suppes & White's Lowary 1, ne sw nw 30-11n-10e, Senora 1557 ft, pb 1557 ft, shot 40 qts, pump 3 bbls, td 1565 ft.

Osage County—Canyon Creek: Norbla's 1, near c n½ sw 20-23n-10e, Arb. 2481 ft, 2000 gal acid, pump 50 bbls oil, 50 water, 2484 ft.

Payne County — Coyle: W. H. Elson & Sohio's McCarty 1, ne ne sw 7-17n-2e, Wilcox 4824 ft, abnd 4842 ft.

Payne County—W. Markham: Okla. Gasoline Plant's Wetzel 1, nw ne nw 10-18n-6e, Viola 3708 ft, shot 25 qts, abnd 3723 ft.

Pottawatomie County — N. W. Earlsboro: J. E. Crosbie's Maddox 1, ne ne se 2-9n-4e, Hunton 4281 ft, 2500 gal acid, flow 162 bbls, td 4299 ft.

Pottawatomie County — King: T. N. Law's Heady 1, c nw nw 31-10n-5e, Hunton 4246 ft, Wilcox 4427 ft, abnd 4435 ft.

Stephens County—Woolsey: Mid-Continent's Baker 2, ne se ne 35-2s-6w, lime 1855 ft, abnd 1855 ft.

Stephens County — West Loco: Jackson Bros.' Lowrey 1, se se ne 7-3s-5w, abnd 1270 ft.

Stephens County: Fair & Bright's O. L. Peck 1, ne sw ne 1-3s-6w, sandy lime 1045-1115 ft, abnd 1270 ft.

OKLAHOMA WELLS DEEPENED

Caddo County—Binger: Denver P. & R.'s Sah-Cam 1, c se se 33-10n-10w, otd 10,084 ft,

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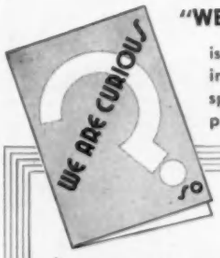

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Creek County—Manfield Dist.: Wood Oil's Weaver 2, sw sw nw 18-19n-9e, otd 2242 ft, Skinner Prod. 2200-42 ft, 335 in. 6 in. liner at 2422 ft, perf casing pump 10 bbls oil, 2,700,000 gas, td 2483 ft.

Lincoln County—Sac & Fox: Wilcox O. & G. Co.'s DeLozier 16, sw sw sw 10-14n-6e, otd 3118 ft, Inola 3335 ft, abnd 3335 ft.

Osage County — Hominy Osage: Moore & Skelly's 4, nw nw sw 35-22n-8e, otd 2102 ft, Miss. 2594 ft, abnd 2605 ft.

OKLAHOMA WILDCATS

Carter County—Failure: Gibson et al's Watchorn 1, c se se nw 8-4s-2w, Top Viola 4269 ft, abnd 4276 ft.

Marshall County—Failure: Magnolia's Beard 1, se se nw 7-7s-6e, abnd 2010 ft.

Okfuskee County—Failure: T. N. Law's Palmer 1, ne se ne 23-10n-9e, Cromwell 3312 ft, abnd 3316 ft.

Osage County—Failure: Peters et al's Osage 1, ne ne ne 11-22n-11e, abnd 2148 ft.

Pawnee County—Failure: Wolf Creek Oil Co.'s Norris 1, se se sw 28-22n-5e, Redfork 3132 ft, Bart 3209 ft, abnd 3235 ft.

Payne County — Failure: Mid-Continent's Jones 1, sw ne ne 12-18n-1e, Wilcox 4997 ft, abnd 5016 ft.

Pottawatomie County—Failure: Ohio's Van Meter 1, nw nw ne 5-8n-4e, Cob 3165 ft, 2nd Wilcox 4897 ft, abnd 4900 ft.

EAST TEXAS

Franklin County—New Hope: Tide Water-Seaboard's G. L. Gilbert 1, 3050 ft wel and 3600 ft snl John Maximillian sur, elev 418 ft, Georgetown 4620 ft, massive anhydrite 7150-7298 ft, Rodessa (Bacon) 7292 ft, Hill 7406 ft, Travis Peak (Pittsburg) 7914 ft, dual completion, flow 349 bbls 42-gr, ratio 194/1, 10/64-in cas choke, Rodessa perf 7295-7311 ft, flow 66 bbls 47-gr, ⅛-in tub choke, Pittsburg sand 7916-80 ft, td 8055 ft, pb 7980 ft.

Wood County — Quitman: Chas. L. McMahon's Taylor 2, 467 ft snl and 1040 ft ewl 117-ac lse, H. Anderson sur A-19, elev 451 ft, Georgetown 5035 ft, Goodland 6181-6252 ft, Paluxy 6256 ft, flow 680 bbls ¼-in, perf 6244-6340 ft, td 6343 ft.

EAST TEXAS WILDCATS

Navarro County—Failure: John W. and O. C. Hooser's Albritton 1, 700 ft from nw and 1500 ft from sw lines, HT&B Ry sur, elev 404 ft, Woodbine 2880 ft, Georgetown 3239 ft, abnd 3241 ft.

NORTH TEXAS

Archer County — Little Wichita: Phillips' Wilson-Trustee 1, 660 ft nsl, 3948 ft ewl Wm. Walker sur, Bend 4870 ft, flow 529 bbls ¾-in, natural, perf 4870-85 ft, td 4948 ft.

Archer County—Vogtsberger: Phillips' Davidson-David 1, 467 ft out swc J. R. McDowell sur, Bend 5141 ft, Miss. 5299 ft, Ellen. 5384 ft, flow 113 bbls oil, 12 water, ¼-in, shot 20 qts 4706-14 ft, td 5443 ft, pb 4717 ft.

Archer County: Golding & Cochran's Kelly 2, 150 ft nsl, 550 ft ewl se¼ BBB&C sec 11, abnd 1226 ft.

Henry Grace Prod. Co.'s Henry 3, 1400 ft wel & on nl sec 35, blk 5, Clark-Plumb sur, pump 5 bbls, sand 901-05 ft.

W. F. Palmer et al's Kamp-Kempner 11, 460 ft out nec se sec 63, KWVFL sur, pump 5 bbls, sand 665-675 ft.

W. C. Young et al's Morrison 4-B, 946 ft ewl, 1273 ft nsl sec 2403, TE&L sur, abnd 1295 ft.

Baylor County: Jack Story, Jr. et al's Portwood 1, 150 ft nsl, 1233 ft ewl sec 3138, TE&L sur, abnd 1480 ft.

Clay County: Bridwell Oil Co.'s Harrison-Allen 7, 5225 ft fr sel, 600 ft fr nel sec 37, J. Duncan sur, abnd 1192 ft.

Fortex Oil Corp.'s Dallas Stock Bank-Texaco 7, 200 ft fr nel, 1660 ft fr sel of s-160 of n-440 ac sec 35, J. Duncan sur, pump 52 bbls, 1123-42 ft.

Perkins-Cullum's Taylor 18-A, 240 ft fr nel, 1180 ft fr sel blk 44, Bacon sur, pump 72 bbls, 1060-78 ft.

John L. Webb et al's Waggoner 1, 250 ft nsl, 450 ewl blk 32, Byers sur, abnd 1358 ft.

Clay County—Joy: Shell's Wynn 1, 330 ft snl, 1543 ft wel lot 14, H. Williams sur, Bend 5436 ft, Miss. 6085 ft, Ellen. 6172 ft, abnd as water disposal well, 6237 ft.

Cooke County: Texas Co.'s Trubenbach 31, 200 ft snl, 742 ft wel lot 7, J. Clark sur, pump 12 bbls, sand 714-69 ft.

L. S. Dennis et al's Voth 7-A, 1450 ft snl, 500 ft ewl S. D. Fulton sur, A-1250, abnd 1700 ft.

Cooke County — Walnut Bend: Texas Co.'s Raiser 1, 330 ft out nwc 98¾-ac lse, sec 80, Fannin CSL, Winger 5556 ft, Simpson 5690 ft, flow 526 bbls 2-in, natural, perf 5556-68, 5595-5616, 5624-34 ft, td 5715 ft.

Wichita County—Airport: Consolidated Oil Co.'s Davidson 2, 1815 ft out nec w½ of J. R. McDowell sur, Bend 5229 ft, Miss. 5325 ft, abnd 5387 ft.

Wichita County: Hanlon & Buchanan's Burnett 19-AAA, 1203 ft ewl, 3032 ft nsl H&GN sec 34, pump 3 bbls 881-87 ft, td 889 ft.

Paradise Oil Co.'s Waggoner Est. 5-E, 100 ft nsl TC Ry sec 1 and 660 ft w of 2-E, flow 720 bbls ½-in, natural, 2008-32 ft.

Culbertson & Co.'s Waggoner Bros. 92, 1400 ft snl, 1020 ft ewl BS&F Ry sec 15, pump 3 bbls, 642-57 ft.

Price Drl. Co.'s Richardson 1, 330 ft out nec SP Ry sec 3, A-265, abnd 830 ft.

Wilbarger County—Rock Crossing: W. T. Waggoner Est.'s Fee 2-BB, 2490 ft nsl and 1540 ft ewl H&TC 47, blk 2, Ellen 3863 ft, flow 480 bbls 1-in, acid 2000 gals, perf 3574-80 ft, td 3876 ft, pb 3580 ft.

Wilbarger County: W. T. Waggoner Est.'s Fee 1-PP, 330 ft ewl, 2640 ft from m/n/s of T. P. Purnell sur A-460, Bend 4038 ft, Ellen 4313 ft, flow 1080 bbls ¼-in, acid 2000 gals 4362-74 ft.

Young County—Padgitt: R. C. Lipscomb et al's Scott-Shell 2, 2310 ft nsl and 467 ft ewl TE&L sec 335, Miss 4683 ft, flow 672 bbls 2-in, acid 750 gals 4690-98 and 4737-50 ft.

Young County: G. E. Kadane and Griffith Oil Co.'s Perkins 1, 1060 ft snl and 922 ft wel sec 23, Young CSL sur, Bend 3611 ft, abnd 3628 ft.

Panhandle Ref. Co.'s M. Elkins 1, 467 ft n and 375 ft w of m/s/s and e lines W. H. Elkins sur A-1957, pump 4 bbls, plus 10 bbls water, shot 5 qts nitro 2375-79 ft, td 2389 ft, pb 2379 ft.

NORTH TEXAS WELLS DEEPENED

Wichita County—K-M-A Ellenburger: Shell and Phillips' Preston 18-A-E, 1165 ft nsl and 2600 ft ewl H&TC 20, blk 7, Ellen 4473 ft, otd 4484 ft, re-complete as sw disposal unit, td 5166 ft.

Wilbarger County—Castleberry: Phillips and King Oil Co.'s Waggoner Est. 3-W, sw ne nw H&TC 63, blk 14, otd 3215 ft, flow 731 bbls ⅛-in, natural, perf 2936-58 ft, td 3976 ft, pb 3146 ft.

NORTH TEXAS WILDCATS

Young County—Oil Discoveries British-American O. P. Co.'s Carpenter-Barrett 1, 4250 ft snl, 330 ft wel Ed. W. Sergeant sur 47, A-253, elev 1222 ft, Bend 4338 ft, Miss. 5180 ft, Ellen 5410 ft, flow 182 bbls 44-gr oil, 196 bbls water ¼-in, acid 1000 gals, Miss. perf 5180-95 ft, td 5537 ft, pb 5250 ft.

Allen Guiberson Jr. and L. A. Long's A. A. Donnell 1, 1500 ft ewl, 6750 ft snl, TE&L sec 1205, Smithwick 3227 ft, Bend 3248 ft, Marble Falls 3914 ft, flow 261 bbls 42-gr ½-in, natural, sand 3914-20 ft.

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WEST CENTRAL TEXAS

Brown County — Crownover: G. Greynolds et al's Innes 1-B, 1225 ft wel, 450 ft nsl nw BBB&C 26, abnd 1059 ft.

Comanche County: J. C. Hamer et al's Smith 7, 550 ft nsl and 600 ft wel BBB&C 31, pump 10 bbls, sand 734-50 ft.

Jones County—North Avoca: Daniel Prod. Co.'s Carlton 1, 660 ft snl, 330 ft wel nw BBB&C 189, abnd 3270 ft.

Palo Pinto County: Ernest Loyd et al's L. E. Hinkson 1, 660 ft from ne and nw lines Peter Miller sur, A 312, abnd 2733 ft.

Shackelford County: J. F. Baker et al's Davis 10, 600 ft snl, 100 ft wel T&P 17, blk 14, abnd 1595 ft.

J. Calvin Jones et al's Sanders 9-A, 900 ft from sw, 1216 ft from nw lines TE&L 586, pump 6 bbls, sand 577-80 ft.

WEST CENTRAL TEXAS WELL DEEPENED

Jones County—Wimberly: Maracaibo's McCoy 1-A, 330 ft nsl, 700 ft wel blk 67, DeWitt CSL, otd 2415 ft, dual completion, flow 1200 bbls, ¾-in, acid 1000 gals upper pay 2405-51 ft; flow 1200 bbls, ¾-in, acid 1500 gals lower pay 2520-30 ft.

WEST CENTRAL TEXAS WILDCATS

Brown County—Failure: A. J. Rife et al's Perkinson 1, 660 ft out swc sec 72, Brown CSL sur 364, abnd 1927 ft.

Comanche County—Failure: P. T. Fullwood et al's Morgan 1, 150 ft out swc of e-80 of nw¼ ET, sec 2, A-1050, abnd 718 ft.

Taylor County—Failure: Lewis Prod. Co.'s Teaff 1, 330 ft out nec W. R. Willis sur 122, elev 1796 ft, abnd hfw in Swastika, td 2755 ft.

WEST TEXAS

Andrews County—Mascho: Phillips' University 1-D, 1842 ft nsl and 678 ft wel sec 4, blk 10, flow 159 bbls ⅛-in, acid 4500 gals, td 4274-4611 ft.

Whitaker Oil Co.'s University-Humble 1-C-a, 660 ft snl and 2080 ft wel sec 14, blk 10, pump 83 bbls, shot 570 qts, 4389-4585 ft.

Cochran County—Slaughter: A. A. A. Oil Corp.'s Boyd-Texaco 5, 2017 ft snl and 1935 ft wel leag 53 Oldham CSL, pump 413 bbls, acid 12,000 gals 5024-49 ft.

Devonian Oil Co. et al's Duggan 28-A, 560 ft out sec lab 6, leag 55, Oldham CSL, flow 718 bbls 2½-in, acid 12,000 gals 5006-49 ft.

Cochran County—Dean: Magnolia's Dean 1-C, 660 ft out nwc lab 36, leag 92, Lipscomb csl, flow 69 bbls ¼-in, acid 10,500 gals 4977-5056 ft.

Crane County—Sand Hills: Magnolia's Lea 24, c nw nw PSL 16, blk B-32, flow 698 bbls. 24/64-in, natural, Clear Fork 4347-4594 ft.

Hockley County—Slaughter: L. M. Glasco et al's Mallet 21-C, 580 ft swc lab 7, leag 48, Edwards CSL, flow 695 bbls cas, acid 12,000 gals 4879-4983 ft.

T. F. Morrow et al's Mallet 48, 580 ft out nwc lab 8, leag 48, Edwards CSL, flow 226 bbls cas, acid 12,000 gals, 4917-60 ft.

T. F. Morrow et al's Mallet 57, 580 ft out swc lab 1, leag 48, Edwards CSL, flow 749 bbls cas, acid 10,000 gals, 4848-92 ft.

Stanolind's S. A. Slaughter 1, 670 ft snl and 654 ft ewl lab 55, leag 40, Maverick CSL, flow 572 bbls 2-in, acid 13,000 gals 4877-4985 ft.

Pecos County—Taylor-Link: Wm. Wolf et al's University-Shell 5-A, ne sw se sec 26, blk 16, pump, 8 bbls, shot 90 qts 1784-1811 ft, td 1957 ft, pb 1811 ft.

Pecos County—Walker: Cardinal Oil Co.'s University 3-F, 2403 ft nsl and 330 ft wel sec 14, blk 16, flow 88 bbls, 1-in, shot 60 qts 2060-83 ft.

Upton County—McCamey: Maloney Dr. Co.'s Hughes 2, 660 ft out nec of w-100 ac sec 4, Wm. Teer sur, pump 9 bbls, **plus 70 percent water,** acid 1000 gals 2010-60 ft, td 2174 ft.

Winkler County—Eaves: Adams & Bradley's Edwards-Gulf 1-B, 660 ft out nec PSL 5, blk C-23, flow 201 bbls oil and 199 bbls water 2-in, natural, perf 3100-25 and 3145-72 ft, td 3179 ft.

Winkler County—Hill: Superior Oil Corp.'s (Tulsa) Hill 2, c nw sw PSL 19, blk B-11, flow 164 bbls ⅝-in, natural, td 3194 ft.

Winkler County—Weiner: Ralph Love et al's Brown-Altman (Humble) 7, c sw nw PSL 24, blk B-5, flow 198 bbls 1-in, shot 250 qts 3035-3145 ft.

Yoakum County—Wasson: Tide Water's Campbell-Posey 3, 880 ft nsl and 440 ft wel sec 897, flow 374 bbls ½-in, acid 7000 gals 4950-5037 ft.

WEST TEXAS WELLS DEEPENED

Upton County—McCamey: J. W. Ellis et al's Robbins 5-B, c sw nw GC&SF, sec 4, otd 2132 ft, pump 22 bbls, td 2239 ft.

Shell's Bowen 36, GC&SF sec 6, otd 2158 ft, pump 212 bbls oil and 24 bbls water, acid 1000 gals 2163-2219 ft.

WEST TEXAS WILDCATS

Crockett County—Gas Discovery: Fred Turner, Jr. and Phillips' Shannon 1, 2310 ft nsl and 3630 ft ewl leag 3, Archer CSL, 3½ mi nw Olson pool, elev 2612 ft, top salt 790 ft, Yates 1202 ft, Yates gr 1212 ft, Grayburg lime 2087 ft, 6,000,000 gas 2-in, acid 500 gals via perf 1895-1958 ft, td 2567 ft.

Pecos County—Failure: Anderson-Prichard's Weir 1, c nw nw T&StL Ry sec 14, blk 140, elev 2560 ft, Ellen 4625 ft, abnd 4815 ft.

Val Verde County—Failure: W. T. Wallace-Johnie Cochburn's Ingram 1, 1980 ft from m/s/n and 330 ft from m/w/w lines, sec 42, H. Morey sur, A-2616, elev 1622 ft, abnd 1826 ft.

TEXAS GULF COAST

Fort Bend County—Clodine: Providence Oil Co.'s Roberts 1, 48-ac tr, John Brock sur, 5½-in 7504 ft, perf 7498-7504 ft, flow 115 bbls, 7/64-in, td 7504 ft.

Hardin County—Sour Lake: H. F. Baker's Minor 1, 150 ft fr nl Stechen Jackson sur, abnd 2720 ft.

Harris County—Satsuma: Stanolind's Tobin 1, 40-ac tr in se cor W. H. Tobin lse, Thomas Nellis sur, abnd 7350 ft.

TEXAS GULF COAST WILDCATS

Liberty County—Failure: W. W. West's Fee 1, se flank Davis Hill, 685-ac tr, J. D. Martinez sur 6, abnd 8421 ft.

LOWER TEXAS COAST

Karnes County—Porter: Phillips' Porter 2, 450 ft fr nwl & 700 ft fr swl 100-ac tr, Persia Porter Est, Victor Blanco gr, 5½-in 3968 ft, perf 3937-40 ft, 136 bbls, 5/32-in, td 3981 ft.

Kleberg County—Seeligson: Humble's King Ranch-Cabeza 10, 660 ft fr wl & 5118 ft fr sl King sur 50, 6420-ac tr, 5½-in 5930 ft, 196 bbls ⅜-in, td 5947 ft.

Victoria County—Placedo: Barnsdall's Schovajsa 1, 330 ft fr wl & 1263 ft fr sl 58-ac tr, blk 15, William Rupley sur, A-290, 5½-in 6095 ft, perf 6028-31 ft, 148 bbls ⅛-in, td 6205 ft.

LOWER TEXAS COAST EXTENSION

Willacy County—Willamar: Pan American's Rodriguez 1, 3000 ft fr nl & 750 ft fr el 338-ac tr, Sam Juan de Carricitos Gr, 5½-in

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7970 ft, perf 7850-7925 ft, 243 bbls ¼-in, td 7970 ft, extends prodn 5400 ft north.

LOWER TEXAS COAST WILDCATS

Calhoun County—Failure: Auto-Ordnance & Texon Royalty's Manuel 1, 4200 ft fr swl & 467 ft fr nwl 582-ac tr, J. M. Cortez sur, abnd 8511 ft.

Nueces County—Failure: Texas Gulf Producing & Southern Minerals' Baxter 1, lot 17, J. V. L. de Herrera Gr, abnd 7525 ft.

SOUTHWEST TEXAS

Duval County—Conoco Driscoll: Continental's Driscoll 22, 2775 ft fr sl & 14,000 ft fr el 12,000-ac lse, SK&K sur 446, A-909, 6-in 3085 ft, perf 2973-82 ft, flow 98 bbls, 3/16-in, td 3320 ft.

Duval County—Sejita: Standard of Texas' Chapa 1, 467 ft fr el & 2400 ft fr sl 280-ac tr, share 10, San Pedro de Charco Redondo Gr, 5½-in 5791 ft, perf 5761-65 ft, flow 26 bbls ¼-in, td 5792 ft.

Duval County — Cadena: Taylor Refining's Garcia 2, 236 ft fr sl & 1851 ft fr el Calletano Rios sur 306, 5½-in 4650 ft, perf 4580-88 ft, flow 65 bbls 3/16-in, td 5220 ft.

Starr County—Rincon: Continental's Garcia 6-D, 992 ft fr nl & 2952 ft fr el W. D. Stephenson sur 907, 1074-ac tr, abnd 4070 ft.

Starr County—North Sun: Sun's de la Garza 12, 600 ft fr e'ly wl & 2254 ft fr n'ly nl 1190-ac tr, share 11, La Sal Colorado Gr, 5½-in 4545 ft, perf 4528-34 ft, flow 105 bbls ⅛-in, td 4545 ft.

SOUTHWEST TEXAS WILDCATS

Duval County — Failure: Sun's Richardson 1, 2500 ft fr nwl & 660 ft fr nel J. Reyes sur 18, 1920-ac lse, abnd 4135 ft.

Starr County—Discovery: Lockhart & Davenport's Garza 2, 1650 ft fr el & 990 ft fr sl share 37-B, J. A. de la Garza Falcon porcion 80, 1⅛ mi se Lockhart field, 5½-in 4086 ft, perf 4014-17 ft, 450,000 gas, 3/16-in, spray oil, td 4086 ft.

TEXAS PANHANDLE

Gray County: Skelly's Gething 3, 408 ft nsl, 330 ft wel sw H&GN 49, blk A-9, pump 107 bbls, granite-wash 2710-35 ft.

Texas Co.'s Bendict 7, 330 ft nsl, 211 ft wel se nw H&GN 55, blk B-2, pump 274 bbls, shot 480 qts 2960-3045 ft.

WYOMING

Big Horn County—Byron: Ohio's Mishler-Badger 1, lot 114 56n-97w, pump 175 bbls, Tensleep 5408 ft, 7-in 5520 ft, pb 5313 ft, td 5583 ft.

Carbon County—Wertz: Sinclair-Wyoming's Unit 32-A, ne sw se 7-26n-89w, flow 200 bbls, Tensleep 6010 ft, 7-in 6009 ft, td 6355 ft.

Converse County—Big Muddy: Continental's Hurst 6, sw ne nw 16-33n-76w, pump 25 bbls, perf 3220-80 ft in Wall Creek, water in Lakota 4567 ft, pb 3280 ft, td 4636 ft.

Laramie County — Horse Creek: General Pet. Corp.'s 32-G-32 (Govt), sw ne nw 32-17n-68w, so 5173-99 ft in Muddy, water in Lakota 5369 ft, abnd 5383 ft.

Park County—Elk Basin: Continental's Elk-E-T-2 101, ne se ne 24-58n-100 w, flow 2400 bbls, Tensleep 3938-4137 ft, 7-in 4082 ft, td 4137 ft.

Stanolind's Elk-6-OPC 25-T, ne nw sw 19-58n-99w, flow 3000 bbls, ¾-in, Tensleep 4014-4230 ft, 7-in 4111 ft, td 4232 ft.

Stanolind's Elk-6-OPC 26-T, ne sw sw 19-58n-99w, flow 3000 bbls, ¾-in, Tensleep 4058-4262 ft, 7-in 4051 ft, td 4230 ft.

Park County—Frannie: Continental's Northern Pacific-1 6, ne se se 23-58n-98w, swab 60 bbls, pb 3003 ft, perf at 2956-72 ft and 2900-16 ft in Madison, water in lower Madison, td 3460 ft.

Sweetwater County—Lost Soldier: Sharples Corp.'s Good 1, se nw se 3-26n-90w, swab 200 bbls, Tensleep, 4733 ft.

Sinclair-Wyoming's Govt. 103, ne sw ne 10-26n-90w, flow 311 bbls, Tensleep 5164 ft, td 5575 ft.

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ARKANSAS

Calhoun County—Locust Bayou: Lion Oil Ref. Co.'s Anthony 1, 13-13s-16w, lcn.

CALIFORNIA

Fresno County: Texas Co.'s S.P. 28-21, sw sw se 21-19-16, Coalinga East Area, grading roads.

Kern County: Chanslor Canfield Midway Oil Co.'s Antelope Fee 12-2, Williams area, ne ne ne 12-28-29, lcn.

E. A. Bender and Burton Benwell's S.P.L. 1, ne nw nw 5-28-28, Round Mountain area, lcn.

Los Angeles County: Standard's Frew 1-2, near e¼ c 29-3-16, Aliso Canyon area, lcn.

San Luis Obispo County: Los Nietos Co.'s Scott 1, 5-32-13, Edna area, lcn.

Ventura County: Union's Ventura Lands 1, ne nw sw 1-3-19, Torrey Canyon area, lcn.

ILLINOIS

Jersey County: W. H. Krohn's A. Boyer 1, sw ne nw 11-8n-12w, lcn.

Perry County: Big Chief Drlg. Co.'s Knox Gee 1, se sw sw 26-4s-1w, lcn.

Randolph County: O. R. Hughes' Wilson 1, sw sw 23-6s-6w, lcn.

White County: C. E. Skiles et al's H. Hoerner 1, e½ nw ne 24-3s-10e, lcn.

White County: A. J. Slagter et al's Sefried 1-A, 80 ft se of nw se sw 30-3s-11e, dr.

INDIANA

Gibson County: Superior Oil Co.'s Hull 1, sw ne ne 27-1s-10w, lcn.

Lake County: Peter Fox & Son's M. A. Carsten 1, ne ne ne 5-32n-9w, lcn.

Posey County: Sinclair-Wyoming's A. Grein 1, ne se 24-8s-14w, lcn.

KANSAS

Barton County: Continental and Darby's Drekle 1, nwc sw 28-19s-14w, woc.

Barber County: Phillips' Davis Ranch 1, nwc 3-35s-15w, c and p.

Cowley County: Northern Ordnance's Thompson 1, nwc sw, 21-33s-5e, c and p.

Kingman County: Vickers' Ralls 1, swc nw 8-30s-8w, c and p.

Ellis County: Phil-Han et al's Falconberry 1, sec nw 3-11s-10w, mim.

Ellsworth County: Cities Service's Heysell 1, nwc 33-16s-8w, lcn.

Greenwood County: K. T. Weidman's Goodrich 1, sec 30-27s-11e, c and p.

Marion County: Frank Dieter et al's Seildart 1, nec se 16-20s-5e, ru tools.

McPherson County: Aladdin's Methodist Church 1, nwc se 14-18s-1w, lcn.

Ness County: Falcon-Seaboard and Ohio's Frevely 1, c se se 22-16s-25w, lcn.

Rice County: Dansiger Oil & Refg. Co.'s Worth 1, nwc 34-18s-8w, dr 1160 ft.

Magnolia's Schoonover 1, sw nw sw 34-18s-9w, c and p.

Stafford County: Fraco Central and Hinkel's Freymiller 1, c sw sw 31-25s-11w, dk.

Marlyn Oil Co.'s Jenkins 1, c w½ sw nw 3-25s-12w, dr.

Sumner County: Barnsdall's Gilbert 1, sec nw 35-30s-1e, mim.

KENTUCKY

Henderson County: Kingwood, Coaster et al's Haas Community 1, sw ne nw 24-P-20, lcn.

Carter's Roscoe Sellers 1, 6-O-23, lcn.

Ohio County: Sohio & Hune's T. E. Bidwell 1, 12-L-29, lcn.

NORTH LOUISIANA

Sabine Parish: Mid-Continent Pet. Corp.'s Long Leaf Lumber Co. 1, nw sw 28-7n-12w, lcn.

MICHIGAN

Clare County: John F. Burton's Thompson 1, se se se 13-18n-5w, lcn.

Mecosta County: Gordon Oil Co.'s Detwiler 1, e½ nw sw 13-16n-8w, dr.

C. L. Maguire, Inc.'s Blair 1, sw sw ne 8-13n-9w, dr.

Ottawa County: Ottawa Oil & Gas Co.'s Bush 1, sw sw sw 4-9n-13w, rig.

Sanilac County: L. G. Thompson's Hirsch 1, e½ se se 14-13n-12e, rig.

Wexford County: Midwest Refining Co.'s Kellogg 1, n½ nw nw 34-21n-11w, rig.

OKLAHOMA

Comanche County: H. N. Conley's Hayes 1, c se se ne 22-4n-11w, mit.

Greer County: E. K. McLennan's Nelson 1, se se sw 30-6n-21w,, lcn.

Kiowa County: C. W. Trickett's Nix 1, c ne sw 32-7n-17w, lcn.

Logan County: Continental and Eason Oil Co.'s School 1, ne sw sw 16-15n-2w, dk.

Noble County: Gulf's Juanita 1, ne ne ne 1-21n-1e, rig.

Stephens County: Artesia Investment Co.'s Sitton 1, nw ne nw 13-3s-6w, sp

Tillman County: O. P. Burnham's Ray 1, c ne sw 26-2s-19w, dr, 2030 ft.

EAST TEXAS

Falls County: LaPage and Brice's R. H. Perkins 1, begin at sec J. B. Harvey Hrs. sur, thence 523 ft se along sw line of Pedo Zarza sur, thence 450 ft ne at right angles and in Zarza sur, 1½ mi nw Mooreville, lcn 1500-ft test.

Henderson County: Fohs Oil Co.'s E. P. Harwell 1, begin at nwc of J. Duncan sur, thence e along s line of Henry Jeffreys sur for 650 ft, thence 330 ft n at right angles and in Jeffreys sur, 2½ mi w Flag Lake pool, mim for Woodbine test.

Houston County: Continental's Robt. Hall 1, 1100 ft ewl and 3975 ft snl Ignacio Lopez sur, 15½ mi w Lovelady, slim-hole test, dr 3720 ft.

WEST CENTRAL TEXAS

Jones County: Great Lakes Carbon Corp.'s O. H. Hardy 1, 660 ft out sec H&TC 11, blk 4, lcn 6000-ft rotary test.

S. C. Herring et al's R. E. Foster 1, 330 ft out sec nw section 49, Orphan Asylum Lands, lcn 3000-ft test.

Palo Pinto County: J. E. Matthews et al's F. J. Berger 1, 330 ft out nec T&P 54, blk 2, lcn 4000-ft test.

A. J. Rife et al's W. H. Belding 1, 660 ft out nwc sw AB&M 1, A 10, lcn 5000-ft test.

TEXAS GULF COAST

Jefferson County: Northern Ordnance, Inc.'s Hinkle 1, 160-ac tr, H&TC 156, 2 mi sw McFaddin 1 discovery, lcn 9600-ft test.

WEST TEXAS

Concho County: E. M. Thomason et al's C. T. Keys 1, 925 ft wel and 330 ft nsl ACH&B 1, lcn 3200-ft test.

Ector County: Stanolind's Cowden 1-B, c se sw T&P 12, blk 44, T-1-N, td 7000 ft, mim to deepen to 9500 ft.

Howard County: Bond Oil Corp.'s T. P.

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Land Trust 1, 1662 ft snl and 1772 ft wel ne T&P 8, blk 30, T-1-S, lcn 4200-ft test.

Floyd County: Pure's Martin 1, c sw ne BS&F 7, blk T, 5 mi n Floydada, lcn 5500-ft test.

Upton County: Maloney Dr. Co.'s Goode 1, 330 ft out sec el 25, blk B, lcn 4000-ft cable test.

NORTH TEXAS

Archer County: A. R. Dillard et al's Wilson-McCrory 1-T, 660 ft out nec ATNCL 111, lcn 5600-ft test.

Clay County: Cable Oil Co.'s L. H. Langford 1, 330 ft snl, 990 ft wel J. L. Myers sur, A 986, lcn 1400-ft test.

Montague County: Continental's S. W. Heard 1-A, 330 ft out sec of e-50 of w-113-ac tr, S. O. Bridgewater sur, A 509, lcn 7500-ft test.

Ross Dr. Co.'s E. M. Huddleston 1, 990 ft ewl, 330 ft snl of J. G. King sur, A 414, lcn 4000-ft test.

Seitz-Comegys & Seitz, Inc.'s C. H. Howard 1, 1614 ft nsl, 1921 ft ewl of s-761 ac of e½ F. Robertson sur, A 920, lcn 2500-ft test.

LOWER TEXAS COAST

Bee County: H. B. Zachry's Campbell 1, 2 mi ne Mineral field, 875-ac tr, Brooks & Burleson sur 1, A 129, lcn 7800-ft Wilcox test.

SOUTHWEST TEXAS

Duval County: J. W. Gorman's Fee 1, 480-ac tr, sur 592, 1 mi se Seven Sisters, lcn 3500-ft test.

Webb County: Dulup Oil Co.'s Garcia 2, 40-ac lse, blk 42, sur 592, Los Ojuelos Gr, lcn 1900-ft test.

Squeaks from the Bull Wheel

Brush Off

"Daddy, am I made of dust?"

"I'm afraid not. If you were, you'd dry up now and then."

Grand Climax

Al Smith was a boy when the Brooklyn Bridge was built. His father attended the opening of the great structure and on his return home gave Al an account of the proceedings.

"Son," he said, "it took years to build this bridge and required the work of thousands of men. The concrete, metal and machinery that went into it cost millions of dollars. Today was the opening. Bands were playing, flags were flying. Well, they cut the tape, and the bridge was opened. And do you know what they found out after all that labor and expense?"

"No," replied Al. "What did they find out?"

"They found," replied the elder Smith, "that all in the world they could do was to go to Brooklyn."

Recess

"Will you ever stop loving me?"

"Well, I'll have to be at reveille at 6 o'clock in the morning."

Uncomplimentary Compliment

"'Tis a foine kid ye have there; a magnificent head and noble features. Say, could ye lend me a couple of dollars?"

"I could not. 'Tis me wife's child by her first husband!"

Eliminated

Did you succeed in rescuing your friend who was captured by the cannibals?

Unfortunately, when I arrived he had already been scratched off the menu.

Miscalculation

"I have been informed that you are three months behind in your alimony, Mose. What have you to say?"

"Ah knows Ah is, Judge, but I jes' couldn't he'p it. You see mah second wife ain't nowhere near as good a worker as Ah expected her to be!"

Blessed Oblivion

Governor Pinchot of Pennsylvania was presiding at a public dinner. At the conclusion of the repast came the inevitable speechmaking. A dignified and impressive gentleman, but withal a terrible bore, arose at the invitation of the chairman and proceeded to deliver an exceedingly dull and interminably long disseration on everything in general and nothing in particular.

The audience became impatient and inattentive. A hum of conversation began, which grew louder and louder. Governor Pinchot felt it his duty to rap for order. As he hit the table with his gavel, the handle snapped and the heavy hardwood head of the instrument flew through the air and landed with a resounding whack squarely on the high, bald forehead of a gentleman seated a few feet away. The guest, already slightly groggy, slumped in his chair.

A horrified silence followed, but the speaker, blissfully unaware of the mishap, droned interminably on.

The injured gentleman revived slightly, lifted his eyes wearily to the speaker, and murmured, "Hit me again; I can still hear him."

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933 Of THE OIL WEEKLY, published weekly at Houston, Texas, for October 1, 1943.

State of Texas, County of Harris, ss:

Before me, a Notary Public in and for the State and County aforesaid, personally appeared A. L. Burns, who, having been duly sworn according to law, deposes and says that he is the Business Manager of THE OIL WEEKLY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Ray L. Dudley, 3371 Chevy Chase, Houston, Texas; Editor, Warren L. Baker, 1613 Woodhead, Houston, Texas; Managing Editor, J. Kent Ridley, 612 Branard, Houston, Texas; Business Manager, A. L. Burns, No. 7 Chelsea Place, Houston, Texas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

The Gulf Publishing Company, Houston, Texas; James Anderson, Houston, Texas; A. L. Burns, Houston, Texas; J. F. Carter, Jr., Tulsa, Okla.; Bayard T. G. Dudley, Houston, Texas; Ray L. Dudley, Independent Executor and Trustee for Estate of Dr. N. L. Dudley, Deceased, Houston, Texas; Ray L. Dudley, Houston, Texas; W. S. Farish, New York, N. Y.; Wm. V. Gross, Utopia, Texas; Howard R. Hughes, Houston, Texas; Mrs. Anita S. Lane, Houston, Texas; Chas. H. Lane, Houston, Texas; Tom W. Nelson, Houston, Texas; Wallace E. Pratt, New York, N. Y.; J. Kent Ridley, Houston, Texas; Mrs. Maud G. Sterling, La Porte, Texas; R. P. Swinsky, New York, N. Y.; O. R. Waller, Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS, Business Manager.

Sworn and subscribed before me this 1st day of October, 1943.

J. KENT RIDLEY,
(Seal) Notary Public, Harris County, Texas.
(My commission expires June 1, 1944.)

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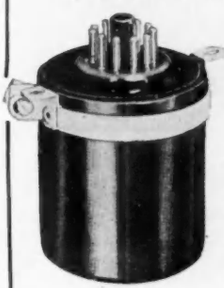

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TRADING POST SECTION

on page 64 of this issue

"USED EQUIPMENT FOR SALE"

"EQUIPMENT WANTED TO BUY"

"HELP WANTED"

"NOTICE OF PROPERTY FOR SALE"

and others that you may find of interest.

Notes for the Equipment Buyer and User

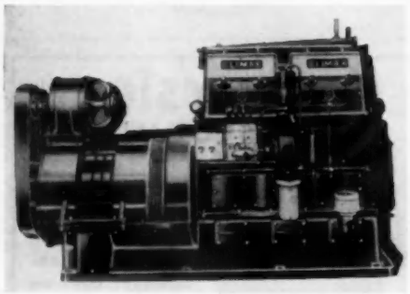
Diesel Engines

CLIMAX ENGINEERING COMMPANY

Climax Engineering Company, Clinton, Iowa, has begun the production of diesel engines, and announces two solid-injection, compression-ignition types.

Both engines are 4-cycle, full diesels and are intended for use as light plants and primary drives for pumps, compressors and other similar applications.

Model D148 is a 2-cylinder unit with maximum rating of 22 horsepower. It may be equipped for pulley drive with or without clutch or clutch and reduction gear or auxiliary power take-off. As a diesel-electric plant, it may be direct connected, on a single base, with a 15 kva generator.



Climax Diesel

Model D297 is a 4-cylinder unit with maximum rating of 44 horsepower. Drive equipment similar to Model D148 may be furnished. A special feature of this model however, is that a flywheel, clutch, generator or marine gears may be installed on either or both ends, provided a radiator is not used. For electric power and light, the D297 may be used to power a 30 kva generator.

Tulsa Winch Manufacturing Corporation of Tulsa, was awarded the Army-Navy "E" Flag September 25 for successful conversion to war production without government aid. Lt. Col. R. W. Coward, executive officer of the St. Louis Ordnance District, in presenting the flag, commended the workers and management of the company for winning the award through their own efficiency.

These engines have one-piece crankcases and cylinder housings. Replaceable chrome nickel iron cylinder liners are used. Exhaust manifolds are water-cooled.

Compactness of these outfits is a feature since they can be installed in the following spaces: D148 engine and equipment, 46 x 32 inches; D148 engine and generator, 76 x 32 inches; R279 engine and equipment, 66 x 32 inches; D279 engine and generator, 92 x 32 inches.

Three-Point Pipe Gage

THREE-POINT GAGE COMPANY

Three-Point Gage Company, 3821 Broadway, Chicago, has developed a pocket size, three-point pipe gage for instantaneous measurement of all sizes of pipe from ⅛-inch to 12 inches.

The gauge consists of two pivoted steel plates with edges curved at three points for contact with the pipe to be measured, together with scale which automatically register not only the pipe size in terms of inside diameter but the drill size for tapping.

Measurement is by determining the outside arc of the pipe at three points of contact, accomplished by placing the two fixed contact points of one plate against the outer contour of the pipe and sliding the second or movable plate until it makes the third contact. The marker on the face of the gauge will then show accurately the size of the pipe and also the correct drill size for tapping.

Le Roi Company, Milwaukee, Wisconsin, has been awarded the Army-Navy "E" for efficiency in production of wartime equipment.

Oil Center Tool Company Increases Capitalization

Oil Center Tool Company, Houston, has increased its capitalization from $360,000 to $500,000, the second increase in five years.

Officers of the company are A. J. Penick, president and general manager; H. D. Start, vice president and plant manager, and B. V. Fisher, secretary-treasurer.

Compressor Calculator

Cooper-Bessemer Corporation, Mount Vernon, Ohio, has announced a compressor calculator, designed to save time in computing compressor requirements, or in estimating the performance of compressor units. The calculator is made of heavy stock, and is pocket size, measuring 3½ inches by 8½ inches.

Of slide rule design, the tool can be used for estimating the volumetric efficiency, brake horsepower and total piston displacement of any make compressor.

Draft-A-Justor

The Preferred Utiliites Company, Inc., 1860 Broadway, New York 23, New York, has announced the "Draft-A-Justor" a device operating by barometric pressure, automatically compensates for variations in outside temperatures, pressures, wind velocity and direction. A 16-page bulletin describing this item may be had by writing to the manufacturer.

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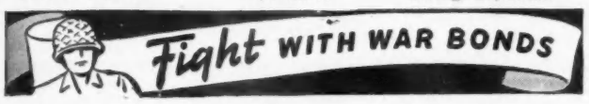

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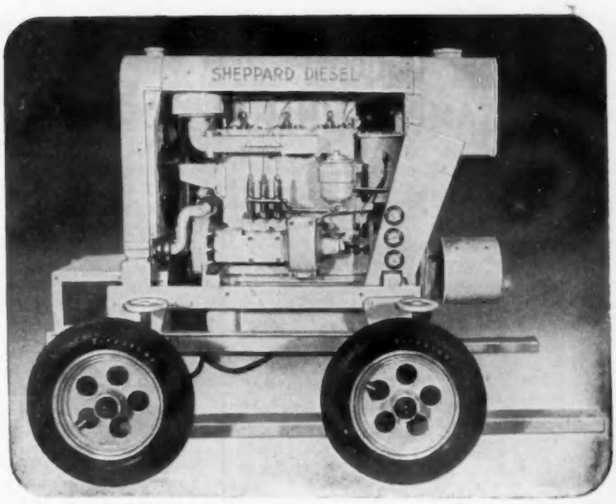

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Men in the Industry's News

GLEN E. THOMPSON, formerly with Tide Water Associated Oil Company, Tulsa, has organized Petroleum Tax and Lease Service, at Longview, Texas. He will act as a consultant on state and local tax matters in Texas, Louisiana, Arkansas and Mississippi, including preparation of state reports and tax renditions.

GEORGE B. WEBSTER of Toronto, who has been assistant to George R. Cottrelle, federal oil controller and who is a former president of Kerr-Addison Gold Mines, has been elected vice president and managing director of Abasand Oils Limited. He succeeds Earl Smith, plant superintendent at Petrolla for Canadian Oil Companies, Ltd., who was loaned to Abasand a few months ago and will now return to Petrolia. Webster will be in charge of operations at Waterways, Alberta, and is relinquishing his duties with the oil controller.

K. B. NOWELS has joined the firm of Hunter & Hunter, Abilene, Texas, the partnership to be known as Hunter, Nowels and Hunter. As a petroleum engineer and geologist, Nowels has been identified with water flooding for the past 13 years, and for 9 years was chief engineer with Forest Oil Corporation. Since 1939 he has been in business for himself as a water-flood consultant.

FRED E. COOPER of Tulsa recently completed a special trip into the Rocky Mountain area where he made a study of new producing areas in Wyoming.

OSCAR HATCHER, geologist with Mid-Continent Petroleum Corporation, Tulsa, is resigning to go with Helmerich & Payne, Inc., also of Tulsa.

DON HYATT, geologist who recently resigned from The Carter Oil Company, is with Sohio Producing Company at Oklahoma City.

E. V. McCOLLUM and Craig Ferris, formerly with Mott-Smith Corporation, Houston, as chief geophysicist and party chief, respectively, have resigned to form E. V. McCollum & Company at Tulsa.

G. J. LOETTERLE, Shell Oil Company, has been elected president of the East Texas Geological Society at Tyler. Other officers named are B. W. Allen, Gulf Oil Corporation, vice president; Lynn L. Harden, Sinclair Prairie Oil Company, secretary-treasurer, and J. H. McGuirt, Magnolia Petroleum Corporation, chairman executive committee.

H. G. SCHAD, general manager of transportation of The Atlantic Refining Company, has been elected a member of the board of directors of the company, to fill the vacancy caused by the recent retirement of William Downs Anderson. Schad joined the company as assistant to the general manager of transportation in 1925, and was made general manager in 1941. He is vice president and director of Keystone Pipe Line Company and Buffalo Pipe Line Corporation, and a director of Atlantic Pipe Line Company, all subsidiaries of The Atlantic Refining Company. He is also a director of War Emergency Tankers, Inc.

ALBERT R. ZELT has been elected ranking vice president of Oil Well Supply Company. He was formerly vice president in charge of manufacturing. He has been associated with Oil Well Supply Company since 1931 when he became manager of the service department with headquarters at Oil City, Pennsylvania. Shortly thereafter he was made works manager, and in 1941 was elected vice president. His future headquarters will be in Dallas, Texas.

HENRY P. EVANS, Skelly Oil Company scout, is transferring from the Ardmore area to Wichita.

Advertiser's Index

***Indicates detailed information on products and services included in 1942 edition of Composite Catalog of Oil Field and Pipe-Line Equipment.**

American Photocopy Equipment Co. 71
*American Sand-Banum Co. 72
The American Well & Prospecting Co. 3
Wm. M. Barret, Inc. 68
*Brown Oil Tools, Inc. 40
*Cameron Iron Works, Inc. 33
*Chain Belt Co. 27
W. H. Curtin & Co. 66
The Eagle-Picher Lead Co. 67
Farm Security Administration 36
Foote Bros. Gear & Mach. Corp. 31
Ft. Worth Laboratories 68
General American Transportation Corp. 71
*General Electric Co. 5
*The Goodyear Tire & Rubber Co. 1
Gulf Engineering Co. 40
Gulf Oil Corp. 2
Harrison Equipment Co. 69
Houston Laboratories 68
*Hughes Tool Co. I Cover
The International Nickel Co. 4 and 47
Ladish Drop Forge Co. 35
*Lane-Wells Company 21
*Le Roi Co. Insert, 40-41
Lufkin Foundry & Machine Co. 49
*McCullough Tool Co. 37
*Mission Manufacturing Co. 61
The National Supply Co. 22-23
*Oil City Brass Works 40
Otis Pressure Control, Inc. 28-29
*Patterson-Ballagh Corp. 36
*Pelican Well Tool & Supply Co. 52
Petroleum Electric Power Assoc. 54-55
*Pittsburgh Steel Co. Insert, 24
*Quaker Rubber Corp. 66
*Reed Roller Bit Co. 39
*Rollway Bearing Co. Insert, 25
Hotel Roosevelt 66
R. H. Sheppard & Co. 71
Southern Engine & Pump Co. 65
*Southern Mill & Manufacturing Co. 59
Spang Chalfant Division
The National Supply Co. 22-23
*Standco Brake Lining Co. 68
Texas Electric Steel Casting Co. 45
The Thermoid Co. II Cover
Glen E. Thompson 68
*Thornhill-Craver Co. 69
Treasury Department 56
*Union Wire Rope Corp. 6
*Unit Rig & Equipment Co. III Cover
*Waukesha Motor Co. 8
*Weatherford Spring Co. 72
Wilson Electrical Equipment Co. 52
Wyatt Metal & Boiler Works IV Cover
Youngstown Sheet & Tube Co. 19